

EXPLORERS EUROLAB

DIGITAL DESIGN AND SUSTAINABLE DEVELOPMENTS (DDSD)

Syllabus and Program Description

EXPLORER

NOUN

- 1 Someone who travels to places where no one has ever been in order to find out what is there.

EXPLORE

VERB

- 1 Travel through (an unfamiliar area) in order to learn about it.
- 2 Inquire into or discuss (a subject) in detail.
 - 2.1 Examine or evaluate (an option or possibility)
- 3 Examine by touch.

EXPLORERS EUROLAB

UNIVERSIDAD ANTONIO DE NEBRIJA, hereinafter referred to as NEBRIJA, with legal domicile at Campus de Ciencias de la Vida en la Berzosa, 28248, Hoyo de Manzanares, Madrid, Spain and represented by Dr. José Muñiz Fernández, Rector of the of the UNIVERSITY,

In this document we describe the details of our SPECIALIST DIPLOMA named: **DIGITAL DESIGN AND SUSTAINABLE DEVELOPMENTS (DDSD)** hereinafter referred to as **DDSD** and fully developed in English.

01 STATEMENT and AIM OF THE PROGRAM

The teaching methodology of this program is based on 2 semesters exploring the field of ARCHITECTURE, proposing to unveil its full extent to our students through processes and goals avoiding static learning procedures. A mental training in constant effort, teamwork, and latest technologies, will offer them a wide range of tools to be able to cope with diverse professional possibilities. We know an Architect is currently able to perform diverse creative activities in a very proficient and open-minded way. This program will open our students' mindset to act not only as a follower in a team but also as valuable assets, skilled and ready to play a key role in decision making when necessary as soon as he finishes his studies.

The structure of this learning program is based on 2 pillars.

The first one is learning through practice in a Lab following eight learning lines of knowledge shaping an interrelated education where students understand how different subjects are actually sides of a common expertise.

Secondly we will encourage experiencing real high level architecture with its real scale and materiality through the offer of 2 optional field trips in Europe that will set students in contact with a straight-forward experience of space, phenomenology and construction.

02 EXCHANGE PRINCIPLES

02.1 The **DIGITAL DESIGN AND SUSTAINABLE DEVELOPMENTS** will allow graduate students of any University obtaining the Nebrija SPECIALIST DIPLOMA recognizing ECTS credits.

02.2 We will name 'Invited institution' to the university where the student is studying his graduate degree. 'Host institution' is the university where the student participating in the certified program spends their mobility period. This agreement offers the possibility to the 'Invited institution' to collaborate and grow a relationship through their schools of Architecture.

02.3 The length of the whole mobility period will be 2 semesters with a total of 330 hours and 44 ECTS divided in two independent semesters of 165 hours and 22 ECTS each. The first semester will start in August-September and finish in January - February and the second one will start in March and finish in May - June

The break between semesters may vary according the Chinese New year holidays or other holidays, which may differ every year.

02.4 Students participating in the certified program will be enrolled at the host university during the mobility period, paying the agreed tuition at UNIVERSIDAD NEBRIJA.

02.5 The study program for **DIGITAL DESIGN AND SUSTAINABLE DEVELOPMENTS**'s students will consist of 6 compulsory on site courses, or if the situation does not allow it, online courses at the host university.

O2.6 NEBRIJA may receive a variable number of students to **DIGITAL DESIGN AND SUSTAINABLE DEVELOPMENTS**, however the actual minimum number of students at NEBRIJA may be more than 12 students.

03 STRUCTURE OF THE SPECIFIC TRAINING CERTIFICATE

This course will offer 2 independent semesters of teaching with a total of 330 hours, granting each student 22 ECTS per semester.

Each of both semesters, share a common configuration and grant a DIPLOMA and will offer 2 optional trips. One of them for 4-5 day nationally in Spain and an 8 days trip to another country in Europe. Our students will visit some of the most interesting and inspiring architectures, studying them in advance from a theoretical point of view as well as later they will do from their direct experience. The participation on the trips will have to be decided by the participant students before starting the semester, and will only be organized if more than 9 students are participating.

Each semester will include 2 half terms of teaching for 7-8 weeks divided by the week reserved for the optional trip. At the end of the semester, each student will get 22 ECTS and a Diploma if the student passes all the courses.



Image of an Architecture Tour for euroLAB students in 2020

O4 CONTENT OF THE COURSES | SYLLABUS DESCRIPTION

SEMESTER I (22 ects) (Digital Design)

- 01 Advanced Design I - 6 ects
- 02 Computational Design I - 3 ects
- 03 Data Mapping - 6 ects
- 04 Unconventional Structures I - 3 ects
- 05 Architectural Contemporary Masterpieces I - 2 ects
- 06 Prototyping - Fabrication - 2 ects

SEMESTER II (22 ects) (Sustainable Developments)

- 01 Advanced Design II - 6 ects
- 02 Computational Design II - 3 ects
- 03 Intervention Ecology - 6 ects
- 04 Unconventional Structures II - 3 ects
- 05 Architectural Contemporary Masterpieces II - 2 ects
- 06 Applied Construction I - 2 ects

SEMESTER I (22 ects) (Digital Design)

O1 ADVANCED DESIGN I (6 ECTS credits)

This course is focused on understanding project design in its full depth, not only related to aesthetic or functional conditions, but also to its social, political and technological implications. We will focus on understanding the strong link between materiality/construction and the other scales and processes of a project while developing an architectural design by the student.

O2 COMPUTATIONAL DESIGN I (3 ECTS credits)

This course focuses on mastering graphical and computational tools as a way to not only render reality and produce documents for construction, but also as a research powerful method.

O3 ENVIRONMENTAL DATA PROCESSING & MAPPING (6 ECTS)

This course will focus on how an architect or urban planner can deal with the big amount of data we are generating, which are a source of underused information currently stored and collected by public institutions and private organizations. The student will learn how to collect them, how to classify them into categories, with the advantage of using software to render it into graphic displays able to be overlapped to get to conclusions due to the common language of maps. The first part will focus on basic mapping and data processing. The second part will focus on how to generate different types of maps.

O4 UNCONVENTIONAL STRUCTURES I (3 ECTS credits)

This course will focus on understanding how non-conventional architecture structures work. Our students are granted the opportunity through these lessons to understand every week how a structure behaves, and how it deploys to increase the future architect options, at the decision taking moment. The course will try to widen the range of solutions, not so much to know how to calculate them and get the right numbers, but how to apprehend the concepts used on this collection of solutions in order to count on more tools for future endeavors to create special and singular spaces.

O5 ARCHITECTURAL CONTEMPORARY MASTERPIECES I (2 ECTS credits)

This course will allow students to acquire the concepts of historical architecture through case study and real life experience. The student will actively understand the background, the procedures and the evolution of some of the most meaningful cases, learning the tools to apply that reasoning in the future to any other architectures he might visit. The concepts and studies, will be

complemented by the trips, which will be compulsory in order to pass the course and obtain the diploma.

O6 PROTOTYPING & FABRICATION (2 ECTS credits)

This course will focus on understanding the inner properties of construction, its connections and functioning, such as the possibilities to work on each material, which lead us to certain geometries or prevent us from choosing a constructive solution in favor of others. The student will study a building or a material procedure every week, related to the structures course, so that they can understand the link between the knots and the structural behavior are deeply linked to what we think and draw in our proposals.

SEMESTER II (22 erts) (Sustainable Developments)

O1 ADVANCED DESIGN II (6 ECTS credits)

This course is focused on understanding project design in its full depth, not only related to aesthetic or functional conditions, but also to its social, political and technological implications. We will focus on understanding the strong link between materiality/construction and the other scales and processes of a project while developing an architectural design by the student.

O2 COMPUTATIONAL DESIGN II (3 ECTS credits)

This course focuses on mastering graphical and computational tools as a way to not only render reality and produce documents for construction, but also as a research powerful method.

O3 INTERVENTION ECOLOGY (6 ECTS credits)

This course will focus on how to manage the larger scale including the natural processes implied by territory management. The vast surfaces that we need to handle as architects as well as the fact that we need to plan in time, taking into consideration the evolution of the implied systems, gives teaching how to handle this procedures, a different attitude and protocols. For that we will take into account recovering, recycling, resilience and every strategy able to balance artificial urban system conditions happening within a context of natural ecosystems.

O4 UNCONVENTIONAL STRUCTURES II (3 ECTS credits)

This course will focus on understanding how non-conventional architecture structures work. Our students are granted the opportunity through these lessons to understand every week how a structure behaves, and how it deploys to increase the future architect options, at the decision taking moment. The course will try to widen the range of solutions, not so much to know how to calculate them and get the right numbers, but how to apprehend the concepts used on this collection of solutions in order to count on more tools for future endeavors to create special and singular spaces.

O5 ARCHITECTURAL CONTEMPORARY MASTERPIECES II (2 ECTS credits)

This course will allow students to acquire the concepts of historical architecture through real life experience. The student will actively understand the background, the procedures and the evolution of some of the most meaningful cases, learning the tools to apply that reasoning in the future to any other architectures he might visit. The concepts and studies, will be complemented by the trips, which will be compulsory in order to pass the course and obtain the diploma.

O6 APPLIED CONSTRUCTION (2 ECTS credits)

This course will focus on understanding the inner properties of construction, its connections and functioning, such as the possibilities to work on each material, which lead us to certain geometries or prevent us from choosing a constructive solution in favor of others. The student will study a building or a material procedure every week, related to the structures course, so that they can

understand the link between the knots and the structural behavior are deeply linked to what we think and draw in our proposals.