

Course guides

290223 - LOW3LI - Low3 Living Zero

Last modified: 06/10/2020

Unit in charge: Vallès School of Architecture
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: DEGREE IN ARCHITECTURE (Syllabus 2010). (Optional subject).
DEGREE IN ARCHITECTURE STUDIES (Syllabus 2014). (Optional subject).

Academic year: 2020 **ECTS Credits:** 3.0 **Languages:** Catalan, English, Spanish

LECTURER

Coordinating lecturer: Masseck, Torsten Andreas

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

EP2G. An aptitude for solving passive environmental conditioning, including thermal and acoustic insulation, climate control, energy performance and natural lighting (T).
EP19G. Adequate knowledge of ecology, sustainability and the principles of conservation of energy resources and environmental resources.

Generical:

CG5G. Knowledge of the physical problems, technologies and functions of buildings so as to provide them with comfortable indoor conditions and protection from climate factors.
CG5A. (ENG) Capacidad de comprender las relaciones entre las personas y los edificios y entre éstos y su entorno, así como la necesidad de relacionar los edificios y los espacios situados entre ellos en función de las necesidades y de la escala humanas.

Transversal:

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

CT1. ENTREPRENEURSHIP AND INNOVATION: An awareness and understanding of the mechanisms on which scientific research is based, as well as the mechanisms and instruments for transferring results among socio-economic agents involved in research, development and innovation processes.

CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: An awareness and understanding of the complexity of economic and social phenomena typical of the welfare state; a capacity for relating welfare to globalisation and sustainability; and the ability to use techniques, technologies, economics and sustainability in a balanced and compatible manner.

CT7. FOREIGN LANGUAGE. Knowledge of a foreign language, preferably English, at an oral and written level that is consistent with graduates' future needs.

Basic:

CB3G. Students must be able to collect and interpret relevant data (generally in their field of study) to make judgements that include reflection on relevant social, scientific and ethical topics.
CB4G. Students must be able to transmit information, ideas, problems and solutions to specialised and lay audiences.

TEACHING METHODOLOGY

The course explores a new mixed learning format, virtual and face-to-face, through combining the concept of a MOOC (Massive Open Online Course) with 4 sessions at the Living Lab LOW3. The practical exercises of the course will be linked to the assessment and improvement of the environmental impact of housing and lifestyle of the participants and to the international "Sustainable Lifestyle Accelerator" project. (www.suslifespain.blogspot.com).



LEARNING OBJECTIVES OF THE SUBJECT

Transformative learning for a societal model and a personal lifestyle with less environmental impact is one of the main challenges of our time.

Main objective of the course LOW3: Living Zero! is to introduce into basic concepts of sustainability and to disseminate the generated knowledge of the LOW3 prototype in the field of housing and a more sustainable lifestyle.

CONTENTS

Meeting Week 1

Description:

Initial in-person activity (Living Lab LOW3): get known to the prototype and the course methodology

Full-or-part-time: 4h

Theory classes: 2h

Self study : 2h

Module 1: Sustainable Lifestyles

Description:

Biocapacity, ecological economy, consumption, resources

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Module 2: Sustainable Housing Concepts

Description:

Habitability, comfort, flexibility, collective housing

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Forum Week 1

Description:

Participation in virtual debates about practical exercises 1 and 2

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Module 3: Photovoltaic Technologies

Description:

History, technologies, building integration, smart grids

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h



Module 4: Solar Thermal Technologies

Description:

History, technologies, building integration, smart grids

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Meeting Week 2

Description:

In-person activity (Living Lab LOW3): Evaluation of ecological footprint and carbon footprint

Full-or-part-time: 4h

Practical classes: 2h

Self study : 2h

Forum Week 2

Description:

Participation in virtual debates about practical exercises 3 and 4

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Meeting Week 3

Description:

In-person activity (Living Lab LOW3): Evaluation of reduction of energy consumption and generation of renewable energies

Full-or-part-time: 4h

Practical classes: 2h

Self study : 2h

Module 5: Materials

Description:

Lightweight buildings, wood construction, embodied energy, life cycle

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h



Module 6: Water

Description:

Water as a resource, domestic consumption, storage and treatment

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Forum Week 3

Description:

Participation in virtual debates about practical exercises 5 and 6

Full-or-part-time: 4h

Guided activities: 2h

Self study : 2h

Meeting Week 4

Description:

Final in-person activity (Living Lab LOW3): Evaluation of exercises on materials and reduction of water consumption. Course summary.

Full-or-part-time: 4h

Theory classes: 2h

Self study : 2h

GRADING SYSTEM

1. Self-evaluation online secures the adquisition of knowledge: 30%
2. Debate forums, together with in-person meetings, improve collective learning and allow evaluating the acquired knowledge: 30%
3. Practical exercises for each learning module include individual reflections of students regarding the specific topics, to be delivered at the end of the course: 40%

BIBLIOGRAPHY

Basic:

- Nou llibre.

RESOURCES

Other resources:

- Explanatory video of the MOOC course produced for IVERSITY MOOC 2013: <http://www.youtube.com/watch?v=vCe37LAjwoo>
- Blog of Living Lab LOW3: <http://livinglab-low3.blogspot.com.es/>
- Blog of SLA project: www.suslifespain.blogspot.com
- Each online learning module has its own bibliografic section