ECO-DESIGN AND SUSTAINABLE DEVELOPMENT

Degree in Industrial Design

Code: 17115

Main Scientific Area: Industrial Design

Lecturer: Miguel Machado de Sá Abreu Terroso

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 45h Total Workload: 65h

ECTS: 4,0

Objectives

This curricular unit aims to integrate concepts, strategies and methods of Eco-Design and Sustainable Development in the Design project.
It intends to add value and contribute to sustainable development being integrated into the national business fabric.

It is intended to sensitize the student to the development of a critical analysis in the scope of design for sustainable development.
Develop the ability to reflect on the issue of Ecodesign and Design for sustainability.Provide content to create a critical and proactive awareness in students for sustainable development in the design and development

of products, goods and services.

Learning Outcomes

- The student should be able to understand the concepts of ecodesign, sustainability and sustainable design;
- The student should acquire the fundamentals of ecodesign (environmental andeconomic aspects of Design), the concept of eco-efficiency;

- Notion of a product's life cycle and respective analysis and evaluation;
- Ecological and sustainable strategies for the life cycle of a product;
- Process approaches and tools for ecodesign, design for sustainability (D4S) in its social, economic, cultural, technological and environmental aspects);
- Communication of design for sustainability, material culture and cultural identity in design for sustainability, systemic solutions oriented towards sustainability (SPS – System – Product – Service);
- The student should understand the importance of the LCA (Life Cycle Assessment); - Mastering the SDGs (Sustainable Development Goals);
- Design of scenarios for sustainability, design for social innovation and sustainable scenario.

Course Contents

- Concepts Definition of Sustainable Development, Sustainability and Ecodesign. - Product life cycle and factors influencing it. (Economics vs Design)
- Concept of Ecological Footprint. Energy analysis associated with the product.- Notions of Eco-efficiency and eco-efficiency

- Triple Bottom Line / Cradle To Cradle;

- Strategies for and from Eco-design and Sustainable Design
- Eco-materials. Replacement of materials.
- Reappraisal of projects / increase of sustainability.
- PSS Global Analysis Product-Service- System / System-oriented solutions for sustainability.
- Design of scenarios for sustainability.

Recommended Bibliography

PAPANEK, Victor (1995). Arquitectura e Design, Edições 70, Lisboa.
PAPANEK, Victor (1985). Design for the Real World. s.l. Ed. Thames and Hudson

CHICK, Anne; MICKLETHWAITE, Paul (2011). Design for Sustainable Development. United Kingdom: AVA Publishing
BONSIEPE, Gui (1992). Teoria e prática do design industrial. Lisboa: Ed. C.P.D., no2 MUNARI, Bruno (1982). Das coisas nascem coisas. Edições 70, Lisboa

BURDEK, Bernhard (1994). Diseño. História, teoria e prática del
diseño industrial. Barcelona: Ed.Gustavo Gilli
NORMAN, Donald (1998). La Psicologia de los Objectos Cotidianos. Madrid: Editorial Nerea.
JONES, Cristopher (1978). Métodos de Diseño. Barcelona: Ed. Gustavo
Gilli.
ROCHA, Carlos Sousa (2000). Plasticidade do papel e Design. Lisboa:
Ed.Plátano.- Tischner, U.; Schminck, E. e outros; " How to do
Ecodesign: A guide for
environmentally and economically sound design; Verlag Form GmbH;
Berlin; (2000).
- CRUL, M. R. M., DIEHL, J. C.(2005) . Design for sustentability. A
Pratical approach for
developning economies. UNEP TUDelft; Paris
- MANZINI,Ezio., Jegou, F.(2003) . Sustainable Everyday. Scenarios of
Urban Life; Edizione
Ambiente; Milano (2003).MINISTRY OF HOUSING (2000). Eco-Indicator
99. Manual for Designers. SPE-MOH, The Hague
VEZZOLI, Carlo; MANZINI, Ezio (2008). Design for Environmental
Sustainability. Springer, Milan

Learning and Teaching Methods

Through this curricular unit the students acquire knowledge about the ecodesign and the problematic of the inherent in product development. This knowledge will be of product development in a sustainable manner, taking into account the product life cycle.

Assessment Methods

Through expository methodologies, themes and concepts definition will bepresented, promoting participatory and active strategies in critical discussion and theoretical-practical problem solving or simulating of practical questions. The tutorial schedule will be applied as an eventual support and follow-up of the work in progress of the course unit. Autonomous: The student must carry out the work, solve problems and / or carryout research on the subjects requested, fulfilling the deadlines that are defined.Some program content may be further developed by the student,

and may also be requested, a public presentation or at the class level.

The evaluation is continuous and results from the monitoring of the work, so the presence in the classes is essential.
Continuous assessment regime based on 5 components.
Component 1: First Practical Exercise: 10%

Component 2: Second Practical Exercise: 20%
Component 3: Third Practical Exercise: 25%
Component 4: Written Test (minimum grade of 6 points): 35% Component 5: Attendance: 10%