Course guide
320145 - DP2 - Product Design II

Last modified: 19/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.

Degree: BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Compulsory subject).

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

LECTURER

Coordinating lecturer: Faura Lopez De Haro, Bernat
Voltas Aguilar, Jordi

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CED42-DIDP. Knowledge of design tools to apply in product design and redesign projects. (Specific technology module: Industrial Design)
CED43-DIDP. Knowledge of design methodology. (Specific technology module: Industrial Design)
CED44-DIDP. Knowledge of anthropometry. (Specific technology module: Industrial Design)
CED45-DIDP. Knowledge of ergonomics for specific needs. (Specific technology module: Industrial Design)
CED54-DIDP. Ability to analyze, design, and project in design workshops. (Specific technology module: Industrial Design)
CED57-DIDP. Practical ability to redesign products. (Specific technology module: Industrial Design)
CED58-DIDP. Practical knowledge of industrial design methodology. (Specific technology module: Industrial Design)

Generical:
CG03-DIDP. Contribution to the professional dimension a dimension of ethical and social responsibility, which involves raising awareness about the implications that professional activity has regarding human, social, cultural, economic, accessibility and environmental values.

Transversal:
CT04 N3. Teamwork - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

TEACHING METHODOLOGY

The course consists of one hour a week of classes in a classroom and 3 hours a week in the computer room.
Sessions where content will be exposed and exercecices will be solved.
Sessions where practical activities will be done.
To do exercises, research and analysis of some information.
To prepare evaluated group activities .

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course, students should be able to:

- Provide knowledge that enables the application of ergonomics in industrial design.
- Know and understand the fundamental principles of ergonomic design and implementation of new products and redesign existing ones.
- Know and understand the issues that determine the viability of a product (function and use).
- Know and understand the social and economic aspects in a society;
- To communicate orally and in writing with others about results, to make decisions, participate in discussions
- Ability to work as a team member, pragmatically and responsibly, assuming commitments in accordance with available resources.
- To managing the acquisition, structure, analysis and visualization of data and information.
- Detecting gaps in one's knowledge and overcoming them through critical thinking and choosing the best path for extend this knowledge.

STUDY LOAD

Type	Hours	Percentage
Hours large group	15,0	10.00
Self study	90,0	60.00
Hours small group	45,0	30.00

Total learning time: 150 h

CONTENTS

TOPIC 1: Introduction to ergonomics

Description:
· Man / machine / product / environment
· Ergonomic Actions

Full-or-part-time: 1h
Theory classes: 1h

TOPIC 2: Ergonomics in the design process

Description:
· Objectives
· Basics principles
· Parameters involved
· Related Sciences

Full-or-part-time: 1h
Theory classes: 1h

TOPIC 3: Anthropometry, application anthropometry

Description:
· Objective.
· Basic Principles
· Anthropometric Measurements
· Factors, distribution percentiles
· Statistical Tables
· Early application anthropometric

Full-or-part-time: 3h
Theory classes: 3h

TOPIC 4: Biomechanics. Criteria for Biomechanical design

Description:
· Objective.
· Human body as a biomechanical system.
· Limit and comfortable angles

Full-or-part-time: 2h
Theory classes: 2h

TOPIC 5: Postural Analysis

Description:
· Postural assessment methods.
· Evaluation of strength and support.
· Evaluation of activity.

Full-or-part-time: 1h
Theory classes: 1h

TOPIC 6: Design of Space

Description:
· Objectives
· Design process.
· Position
· Height.
· Area stats
· Viewing area

Full-or-part-time: 1h
Theory classes: 1h

TOPIC 7: Design of tools and commands

Description:
· Comfort user-task-tool
· Tools. Grip and neutral position
· Communication-user product. Interaction
· Interface design
· Signs, displays and controls

Full-or-part-time: 2h
Theory classes: 2h

TOPIC 8: Environmental aspects: light.

Description:
· Lighting. Parameters
· Light sources
· Lighting design workspace
· Psychology

Full-or-part-time: 2h
Theory classes: 2h

TOPIC 9: Environmental aspects: thermal comforts

Description:
· Thermal balance
· Thermoregulation
· Overload and caloric stress
· Evaluation methods.
· Metabolic consumption
· Evaluation of the energy business

Full-or-part-time: 2h
Theory classes: 2h

ACTIVITIES

(ENG) TREBALLS PRÀCTICS

Full-or-part-time: 45h
Laboratory classes: 45h

GRADING SYSTEM

Continuous evaluation model will be applied in order to evaluate both self-employment and teamwork. The Final mark is:
Proejct group 1. 30%
Proejct group 2. 40%
Proejct group 3. 20%
Personal project. 10%

Project marks include rapport and prototype as a deliverables.

EXAMINATION RULES.

1. Classes will be theoretical and practical.
2. The contents will be taught both in theoretical and practical classes.
3. There will be practical activities and a project during the entire course.
4. The delivery of all the exercises are indispensable for evaluation of the subject.
5. The exercises will take place in class and as independent work practices, under the supervision of teachers.
6. The work unsupervised by teachers during class will not be evaluated.