

320145 - DP2 - Product Design II

Coordinating unit:	205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering		
Teaching unit:	717 - EGE - Department of Engineering Presentation		
Academic year:	2019		
Degree:	BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)		
ECTS credits:	6	Teaching languages:	Catalan, Spanish

Teaching staff

Coordinator: Emilio PEREZ DIEGUEZ / Xavier ALBAREDA SOTERAS

Degree competences to which the subject contributes

Transversal:

1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
2. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
3. 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.
4. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

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 exercises 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.



320145 - DP2 - Product Design II

Study load

Total learning time: 150h	Hours large group:	15h	10.00%
	Hours medium group:	0h	0.00%
	Hours small group:	45h	30.00%
	Guided activities:	6h	4.00%
	Self study:	84h	56.00%

320145 - DP2 - Product Design II

Content

<p>TOPIC 1: Introduction to ergonomics</p>	<p>Learning time: 1h Theory classes: 1h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Man / machine / product / environment · Ergonomic Actions 	
<p>TOPIC 2: Ergonomics in the design process</p>	<p>Learning time: 1h Theory classes: 1h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Objectives · Basics principles · Parameters involved · Related Sciences 	
<p>TOPIC 3: Anthropometry, application anthropometry</p>	<p>Learning time: 3h Theory classes: 3h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Objective. · Basic Principles · Anthropometric Measurements · Factors, distribution percentiles · Statistical Tables · Early application anthropometric 	
<p>TOPIC 4: Biomechanics. Criteria for Biomechanical design</p>	<p>Learning time: 2h Theory classes: 2h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Objective. · Human body as a biomechanical system. · Limit and comfortable angles 	

320145 - DP2 - Product Design II

<p>TOPIC 5: Postural Analysis</p>	<p>Learning time: 1h Theory classes: 1h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Postural assessment methods. · Evaluation of strength and support. · Evaluation of activity. 	
<p>TOPIC 6: Design of Space</p>	<p>Learning time: 1h Theory classes: 1h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Objectives · Design process. · Position · Height. · Area stats · Viewing area 	
<p>TOPIC 7: Design of tools and commands</p>	<p>Learning time: 2h Theory classes: 2h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Comfort user-task-tool · Tools. Grip and neutral position · Communication-user product. Interaction · Interface design · Signs, displays and controls 	
<p>TOPIC 8: Environmental aspects: light.</p>	<p>Learning time: 2h Theory classes: 2h</p>
<p>Description:</p> <ul style="list-style-type: none"> · Lighting. Parameters · Light sources · Lighting design workspace · Psychology 	

320145 - DP2 - Product Design II

TOPIC 9: Environmental aspects: thermal comforts	Learning time: 2h Theory classes: 2h
<p>Description:</p> <ul style="list-style-type: none"> · Thermal balance · Thermoregulation · Overload and caloric stress · Evaluation methods. · Metabolic consumption · Evaluation of the energy business 	

Planning of activities

(ENG) TREBALLS PRÀCTICS	Hours: 45h Laboratory classes: 45h
-------------------------	---------------------------------------

Qualification system

Continuous evaluation model will be applied in order to evaluate both self-employment and teamwork. The Final mark is:
 $NF = 0.25Theroy + 0.25Work + 0.40 Project + 0.10Presentation$

- Theory: Controls and exams.
- Work: Activities (cases, problems,).
- Project: Preparation of project progress.
- Presentation: Oral presentation of the completed project.

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept.

If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

Regulations for carrying out activities

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 and class attendance 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.

Bibliography