25812 - Statistics and product reliability

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	558 - Bachelor's Degree in Industrial Design and Product Development Engineering 271 - Bachelor's Degree in Industrial Design and Product Development Engineering
ECTS	6.0
Course	---
Period	Indeterminate
Subject Type	Basic Education
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

In this semester, teachers use the teaching experience 'teaching by means of modules', which aims to develop the degree competencies through teamwork and project based learning (PBL). This teaching method integrates the different subjects in the semester, so that the student understands the multidisciplinary nature of design and the need of using different skills to work on a project. Work is evaluated continuously and jointly by the group of teachers, in short periods of time called stages. In this subject, the Module is done in the first four weeks.

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In the next eleven weeks, the methodology proposed is designed to achieve a continous assesment for the student and is centered in practical aspects of Statistics: work with real data.

There are sesions with all students. In This sesions theoretical aspects are presented . There are also sesions with small groups. This last sesions are for a work with a spreadsheet an statistical software (R commander).

5.2.Learning activities

The subject implies 4 hours/week for 15 weeks. 2 hours/week for all the group and 2hours/week in small group in computer lab. The clases are held according to Schedule established by EINA. Also teacher informs its hours of tutoring

The 6 credits are:

60 hours in the classroom (30 for all the group, 30 for small groups)

40 hours for study and personal work

50 hours for problem solving task in group

5.3.Program

The description of contents in the subject is the following:

Part I: One Variable. Descriptive Statistics and Module (as described in 5.1)

· Types of variables. Data collection for the analysis of the product on the market. · Software: R Commander · Exploratory Analysis of data

Part II: One variable. Random variables, reliability and one population inference

· Basic Probability · Random variables: discrete and continous · Reliability · Inference for one population. Censored data

Part III: Relationships between variables

· Contingency Tables · Inference for more than one population: two means comparisons and one factor ANOVA · Regression models

5.4.Planning and scheduling

Week	Deadline

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4	Group work: analisys of the market (Module)
12	Examination (Part II) (Contiuous assessment)
15	Examination (Part III) (Contiuous assessment)
June and September	Final Examination of the semester.

5.5.Bibliography and recomended resources

- Montgomery, D. C. y G. C. Runger. Probabilidad y Estadística aplicadas a la Ingeniería. 2ª Edición. Limusa-Wiley. 2002
- Peña, D. Fundamentos de Estadística. Alianza Editorial. 2001.
- Ross, S. M. Introducción a la Estadística. Reverté. 2007
- Griful, E. Fiabilidad Industrial. Edicions UPC. 2001
- Tomeo, V. y Uña, I. Lecciones de Estadística Descriptiva. Thompson, 2003