

25812 - Statistics and product reliability

Información del Plan Docente

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	271 - Bachelor's Degree in Industrial Design and Product Development Engineering 558 - Bachelor's Degree in Industrial Design and Product Development Engineering
ECTS	6.0
Year	---
Semester	Indeterminate
Subject Type	Basic Education
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

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

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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.

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

There are sessions with all students. In these sessions theoretical aspects are presented. There are also sessions with small groups. These last sessions are for a work with a spreadsheet and statistical software (R commander).

5.2. Learning tasks

The subject implies 4 hours/week for 15 weeks. 2 hours/week for all the group and 2 hours/week in small group in computer lab. The classes are held according to the Schedule established by EINA. Also the 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. Syllabus

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 continuous · 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. Course planning and calendar

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Week	Deadline
4	Group work: analysis of the market (Module)
12	Examination (Part II) (Continuous assessment)
15	Examination (Part III) (Continuous assessment)
June and September	Final Examination of the semester.

5.5. Bibliography and recommended 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