230808 - STAT - Statistics

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2016
Degree: BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional)

ECTS credits: 6

Teaching languages: English

Teaching staff
Coordinator: JOSEP M. AROCA FARRERONS
Others: JOSEP M. AROCA FARRERONS

Prior skills
Probability, random variables.

Requirements
PPEE.

Teaching methodology
- Lectures.
- Application classes.
- Laboratory classes.
- Exercises.
- Short answer test (Control).
- Short answer test (Test).
- Extended answer test (Final Exam).

Learning objectives of the subject
Basic concepts and methods of statistics. Data analysis, hypothesis testing, estimation.
### Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 26h 17.33%</th>
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<tbody>
<tr>
<td></td>
<td>Hours small group: 26h 17.33%</td>
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<tr>
<td></td>
<td>Self study: 98h 65.33%</td>
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</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Learning time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Random variables</td>
<td>19h</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
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<tr>
<td>Basic concepts of random variables. Parameters. Important variables in statistics: Gaussian, chi-squared, Student's t, Fisher's F.</td>
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<tr>
<td>2. Descriptive statistics. Theory of sampling</td>
<td>21h</td>
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<tr>
<td><strong>Description:</strong></td>
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<tr>
<td>Populations and samples. Distribution of sample statistics. Sample mean value and variance. Distribution of proportions, differences and sums, ratio of variances.</td>
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<tr>
<td>3. Estimation Theory. Confidence Intervals</td>
<td>21h</td>
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<tr>
<td><strong>Description:</strong></td>
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<tr>
<td>4. Statistical hypothesis testing</td>
<td>22h</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td></td>
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### 5. Regression

**Learning time:** 22h  
Theory classes: 3h  
Practical classes: 3h  
Laboratory classes: 2h  
Self study: 14h  

**Description:**  

### 6. Analysis of variance

**Learning time:** 22h  
Theory classes: 3h  
Practical classes: 3h  
Laboratory classes: 2h  
Self study: 14h  

**Description:**  

### 7. Non-parametric tests

**Learning time:** 23h  
Theory classes: 4h  
Practical classes: 2h  
Laboratory classes: 3h  
Self study: 14h  

**Description:**  

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**Qualification system**

The final grade is obtained from the works proposed by the professor (each one 10% to 35% of the total grade)
Bibliography

Basic:


Complementary:


Others resources: