Course guides
230816 - BDR - Big Data and R Programming

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 749 - MAT - Department of Mathematics.

Degree:
- BACHELOR’S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
- BACHELOR’S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Optional subject).
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Optional subject).
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Optional subject).
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).
- BACHELOR’S DEGREE IN ELECTRONIC ENGINEERING AND TELECOMMUNICATION (Syllabus 2018). (Optional subject).

Academic year: 2021  ECTS Credits: 6.0  Languages: English

LECTURER

Coordinating lecturer: Josep M. Aroca Farrerons
Others: Josep M. Aroca Farrerons

PRIOR SKILLS

Probability and Statistics

TEACHING METHODOLOGY

Lectures
Application classes
Laboratory classes

LEARNING OBJECTIVES OF THE SUBJECT

Programming in R. Data modeling. Big Data methods and examples.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>98,0</td>
<td>65.33</td>
</tr>
<tr>
<td>Hours small group</td>
<td>52,0</td>
<td>34.67</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

<table>
<thead>
<tr>
<th><strong>Introduction to R</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> The R project. Basic operations. Reading data. Graphics.</td>
</tr>
<tr>
<td><strong>Full-or-part-time:</strong> 8h</td>
</tr>
<tr>
<td>Laboratory classes: 8h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Data modeling</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> Statistics in R. Linear models, regression. Using factors. Visualizing data.</td>
</tr>
<tr>
<td><strong>Full-or-part-time:</strong> 12h</td>
</tr>
<tr>
<td>Laboratory classes: 12h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Big Data overview</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> A general description of the Big Data paradigm/problems/methods.</td>
</tr>
<tr>
<td><strong>Full-or-part-time:</strong> 8h</td>
</tr>
<tr>
<td>Laboratory classes: 8h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Big Data methods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> Predictive analytics, machine learning, data mining.</td>
</tr>
<tr>
<td><strong>Full-or-part-time:</strong> 10h</td>
</tr>
<tr>
<td>Theory classes: 10h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Examples</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> Case example problems</td>
</tr>
<tr>
<td><strong>Full-or-part-time:</strong> 14h</td>
</tr>
<tr>
<td>Theory classes: 14h</td>
</tr>
</tbody>
</table>

## GRADING SYSTEM

Laboratory assessments: 100%
BIBLIOGRAPHY

Basic: