Course guide
320123 - TP - Speech Technology

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.
Degree: BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).
Academic year: 2022 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER
Coordinating lecturer: Ignasi Esquerra
Others: Albino Nogueiras

PRIOR SKILLS
It is recommended to have taken the courses in "Digital Audio Processing" and "Algorithms and Audiovisual Programming", and to have a certain knowledge in programming in Linux platforms.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES
Specific:
CE26. (ENG) AUD: Coneixements i capacitats per aprofundir en tecnologies específiques de l'àmbit.

TEACHING METHODOLOGY
Learning with a teacher:
Autonomous learning:
b) Individual study, exercise solving and handouts preparation.

LEARNING OBJECTIVES OF THE SUBJECT
Understanding the technologies used in human-computer interaction systems by voice. Students by the end of the course will learn several techniques of speech signal processing and will be able to put them into practice in speech recognition and speech synthesis systems.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>30,0</td>
<td>20.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

### 1. HUMAN-COMPUTER INTERACTION BY VOICE

**Description:**
Spoken language technologies. Historical review of Human-Computer interaction by voice. Applications and current research lines.

**Full-or-part-time:** 10h  
Theory classes: 2h  
Laboratory classes: 2h  
Self study: 6h

### 2. DATABASES

**Description:**

**Full-or-part-time:** 30h  
Theory classes: 8h  
Laboratory classes: 8h  
Self study: 14h

### 3. SPEECH SYNTHESIS

**Description:**

**Full-or-part-time:** 46h  
Theory classes: 8h  
Laboratory classes: 8h  
Self study: 30h

### 4. SPEECH RECOGNITION

**Description:**

**Full-or-part-time:** 64h  
Theory classes: 12h  
Laboratory classes: 12h  
Self study: 40h

### GRADING SYSTEM

The final mark is the weighted sum of partial marks of course units. Each unit is assessed with several laboratory assignments or exams. None of the qualification elements has a weight over 25%.

Unit 1 (10%), Unit 2 (20%), Unit 3 (35%), Unit 4 (35%)
BIBLIOGRAPHY

Complementary: