Active noise control

Lissek Hervé

EE-706

Cursus: Génie électrique
Sem.: 
Type: Obl.

<table>
<thead>
<tr>
<th>Language</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits</td>
<td>2</td>
</tr>
<tr>
<td>Session</td>
<td></td>
</tr>
<tr>
<td>Exam</td>
<td>Multiple</td>
</tr>
<tr>
<td>Workload</td>
<td>60h</td>
</tr>
<tr>
<td>Hours</td>
<td>28</td>
</tr>
<tr>
<td>Lecture</td>
<td>14</td>
</tr>
<tr>
<td>Exercises</td>
<td>4</td>
</tr>
<tr>
<td>Practical work</td>
<td>10</td>
</tr>
<tr>
<td>Number of positions</td>
<td>20</td>
</tr>
</tbody>
</table>

Frequency
Every 2 years

Remarque
Every 2 years. Next time: Spring 2021

Summary
Acoustics, electroacoustics transducers, filters design, antennas, active noise control, sound field control.

Content
1. **Fundamental acoustics**
   - Sound propagation - sound sources - interferences - refraction of sound - Guided waves in 1D (transmission lines, lumped-elements model)
2. **Active noise control concepts**
   - Historics of active noise control - Feedforward active noise control - Feedback active noise control - From active noise cancellation to active sound absorption
3. **Electroacoustic transductions**
   - Transductions and models (actuators, sensors, arrays of transducers) - Sound sources optimization and control
4. **Transducer-based active concepts**
   - Shunt loudspeakers - Bridging the gap between shunt loudspeakers and active sound absorption

Keywords
Acoustics, electroacoustics transducers, filters design, antennas, active noise control, sound field control.

Learning Prerequisites
Recommended courses
Audio I and II, acoustic propagation.

Assessment methods
Project report and oral presentation.