230909 - EDT - Differential Equations and Transforms

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2018
ECTS credits: 6
Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: Jimenez Urroz, Jorge

Prior skills
Basic Calculus, Linear Algebra

Degree competences to which the subject contributes

Transversal:
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

Teaching methodology
Expository instruction/Master class

Learning objectives of the subject

The main goal of the subject is the study of the main transforms, the Fourier Series and their applications to solving ordinary differential equations and systems, and some partial differential equations (like the one-dimensional wave equation). The contents of this subject is well connected to the other subjects about linear circuits and signal processing, including as well the basic concepts about differential equations needed in other subjects related to electronics and electromagnetism.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 65h</th>
<th>43.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study:</td>
<td>85h</td>
<td>56.67%</td>
</tr>
</tbody>
</table>
## Content

| **Laplace Transform** | **Learning time:** 12h  
Theory classes: 12h |
|---|---|
| **Description:**  

| **Introduction to ordinary differential equations** | **Learning time:** 12h  
Theory classes: 12h |
|---|---|
| **Description:**  

| **Fourier Series** | **Learning time:** 16h  
Theory classes: 16h |
|---|---|
| **Description:**  

| **Fourier Transform** | **Learning time:** 12h  
Theory classes: 12h |
|---|---|
| **Description:**  
### 230909 - EDT - Differential Equations and Transforms

**z Transform**

<table>
<thead>
<tr>
<th>Description:</th>
</tr>
</thead>
</table>

**Learning time:** 13h  
**Theory classes:** 13h

---

**Qualification system**

Short partial exams (40%). Final exam (60%). The final score of the course will be the maximum between the previous and the score of the final exam.

---

**Bibliography**

**Basic:**

**Complementary:**