

# Laboratorio de Tratamiento Digital de Señales

## 5º Ingeniería de Telecomunicación

### **Assignment 1: Wiener Filtering**

#### **Statement:**

The input and output signals for four different systems are available. We wish to *identify* them. In each case:

- a) State the system identification scenario and solve the related Wiener formulae. Use 80% of the data (train) to calculate weights (repeat for filter lengths between 1 and 5) and the other 20% (test) to work out the error incurred. Write down in the adequate tables the coefficients and related MSE values.
  - b) Try to explain the results obtained in each case by the observation of weights and correlation matrices. Discuss the nature of the signals and systems involved.
  - c) Do you think there was any noise present when generating  $d[n]$  from  $u[n]$ ?
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