ETSIT
Escuela Técnica Superior de
Ingenieros de **Telecomunicación**

Fundamentals of Machine Learning (FML)			
Code number:	75097	Number of ECTS:	6 ECTS
Semester:	Autumn	Language:	English

Lecturer(s) and contact:

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Learning goals:

At the end of the course the student must be able to:

- Explain what machine learning is and enumerate the type of machine learning types.
- Describe the basic theory of machine learning and its practical implications in system design.
- Describe and apply various models of supervised and unsupervised machine learning.
- Describe and apply regularization, validation and aggregation techniques in the development of systems based on machine learning.
- Implement systems based on machine learning using Python.

Contents:

LESSON 0: Presentation and introduction to Python

LESSON 1: Introduction to machine learning

LESSON 2: Is it feasible to learn? (First part)

LESSON 3: The linear model: Classification and linear regression

LESSON 4: Is it feasible to learn? (Second part)

LESSON 5: The linear model: Logistic regression

LESSON 6: Regularization

LESSON 7: Validation

LESSON 8: Neural networks

LESSON 9: Support vector machines (SVM)

LESSON 10: Decision trees

LESSON 11: Some aspects to take into account in the design of supervised learning systems

LESSON 12: Clustering

LESSON 13: Dimensionality reduction

LESSON 14: Recommender systems

LESSON 15: Association rules

Prerequisites:

Good knowledge in maths and basic programming skills. Students will need to bring their own laptop.