

Fundamentals of Machine Learning (FML)			
Code number:	75097	Number of ECTS:	6 ECTS
Semester:	Autumn	Language:	English
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<p>Learning goals:</p> <p>At the end of the course the student must be able to:</p> <ul style="list-style-type: none"> • 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. 			
<p>Contents:</p> <p>LESSON 0: Presentation and Introduction to Python</p> <p>LESSON 1: Introduction to machine learning</p> <p>LESSON 2: Is it feasible to learn? (First part)</p> <p>LESSON 3: The linear model: Classification and linear regression</p> <p>LESSON 4: Is it feasible to learn? (Second part)</p> <p>LESSON 5: The linear model: Logistic regression</p> <p>LESSON 6: Regularization</p> <p>LESSON 7: Validation</p> <p>LESSON 8: Neural networks</p> <p>LESSON 9: Support vector machines (SVM)</p> <p>LESSON 10: Decision trees</p> <p>LESSON 11: Some aspects to take into account in the design of supervised learning systems</p> <p>LESSON 12: Clustering</p> <p>LESSON 13: Dimensionality reduction</p> <p>LESSON 14: Deep Learning</p>			



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Prerequisites:

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

Assessment:

Assessment Instrument:

- 90% Lab exercises (minimum: 50%).
- 10% Attitude and participation in training activities (minimum: 50%).

Resit:

- The marks of attitude and participation in training activities of the ordinary call will be kept.