GENERAL INFORMATION					
Course name	TR4. Introduction to Artificial Intelligence				
Semester	1	Character	Compulsory	Type of module	Transversal
ECTS	3		Modality	On line	
Higher Education Institution(s)			FHJ, MU		
Lecturer(s)			Stefan Muckenhuber Stefan Neunkirchen Beatriz Chicote		

LEARNING AND TEACHING	
ESCO Occupation(s)	Calculation engineer
ESCO Skill & Competences (*no ESCO)	Principles of artificial intelligence Evaluate data, information and digital content Adapt evaluation methodology Statistics
Learning outcomes	KU1 EA1 IN1
Teaching methods	Lectures Case Studies Collaborative and Problem-Based Learning (PBL)
Assessment methods	Examinations Problem sets and exercises Oral presentation & defence Technical reports

CONTENTS

Previous requirements (if necessary)

Content index

1. Introduction to Intelligent Systems:
   - Artificial Intelligence (inductive, deductive, abductive)
   - Machine Learning (Classification, Prediction, Clustering, Optimisation techniques)
   - Data Science (Tools and Frameworks)
2. Data collection (sensors & Cyber-Physical Systems)
3. Data ingestion (data flow and pipelines design and implementation)
4. Data pre-processing (cleaning, imputation, statistical analysis, feature engineering)
5. Data storage (data structure design)
6. Data analysis (AI, ML and Data Mining techniques for Knowledge extraction)
7. Applied statistics.
   - Statistical concepts and basic statistical terms: population, sample, variables, frequencies.
   - Statistical data processing: data entry, data import and data preparation
   - Descriptive statistics
   - Inductive statistics
   - Graphical representation of the results.
   - Critical interpretation of statistical outputs.

SUPPORTING BIBLIOGRAPHIC REFERENCES
Lecture notes; handouts; Books: • Russell/Norvig: Artificial Intelligence A Modern Approach • Tariq Rashid: Make Your Own Neural Network Journals: • Foundations and Trends in Machine Learning, University of California, Berkeley • Industrial Artificial Intelligence, Springer • The Journal of Artificial Intelligence, Elsevier
SOFTWARE
Python