

Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF 513	Natural Language Processing	2	3	0	0	3	6

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Elective
Course Level	Masters Degree
Objective	Teaching theoretical fundamentals, tools, concepts and methodologies for manipulating textual information with computers.
Content	- Introduction to Natural Language Processing (NLP) - Finite States Machine and NLP - Applications: Nooj, Unitex,... - N-grams - POS Tagging - Application: Porter Stemmer, Brill Tagger,... - HMM - Syntactic Parsing - Semantic - Application: Building a chunk parser - Computational lexical semantics - Computational discourse - Information extraction, temporal event extracting - Application: Named Entities recognition
References	- Foundation of Statistical Natural Language Processing, C.D. Manning & H. Schütze, The MIT Press, 6th ed, 2003 - Speech and Language Processing, D. Jurafsky & J.H. Martin, Pearson, 2009 - Natural Language Processing with Python, Steven Bird, Ewan Klein, Edward Loper, O'Reilly Media, June 2009

Theory Topics

Week	Weekly Contents
1	Regular Expressions, Text Normalization, Edit Distance
2	Finite State Transducers, Spelling Correction
3	Neural Nets, Deep Learning Models-I
4	Deep Learning Models-II
5	Hidden Markov Models, ngrams, stochastic language models
6	Part of Speech (POS) Tagging, Formal Grammars
7	Syntactic and morphological analyzers
8	Lexicons; design and implementation
9	Computational semantics, information extraction
10	Text classification, text summarization
11	Machine translation, question-answering systems
12	Speech Analysis-I
13	Speech Analysis-II: synthesis, recognition
14	Projects