University of Computer Studies
M. C. Sc.- Knowledge Engineering

CS – 604 : Natural Language Processing **First Semester**

Text Book : Speech and Language Processing, 2nd Edition, written by Daniel Jurafsky and James H. Martin

Periods : 45 periods for 15 weeks (50 minutes for 1 period)

No.	Chapter	Period	Detailed Lecture
1	**Chapter 1 Introduction**	**2**	
	1.1 Knowledge in Speech and Language Processing 1.2 Ambiguity of Language: why NLP is difficult? 1.3 Models and Algorithms 1.5 State of the art 1.6 Some brief history	2	Overview
2	**Chapter 2 Regular Expressions and Automata**	**6**	
	2.1 Regular Expressions 2.2 Finite State Automata	2 2	Detail Detail
	Exercises and Assignments	2	Exercises of RE and FSA
3	**Chapter 3 Morphology and Finite-State Transducers**	**12**	
	3.1 Survey of English Morphology 3.2 Finite-State Morphological Parsing 3.3 Building a Finite-State Lexicon 3.4 Finite-State Transducers 3.5 FSTs for Morphological Parsing 3.6 Transducers and Orthographic rules 3.7 Combining FST Lexicon and Rules 3.11 Minimum Edit Distance	1 2 1 1 1 1 1 2	Overview Detail Detail Detail Detail Overview Overview Overview
	Exercises and Assignments	2	Exercises of Morphological Parsing using FSA, FST
4	**Chapter 4 N-grams**	**8**	
	4.1 Counting words in corpora 4.2 Simple N-grams 4.3 Training and Test Sets 4.4 Evaluating N-grams 4.5 Smoothing	1 2 1 1 1	Detail Detail Detail Detail Detail

No.	Chapter	Period	Detailed Lecture
	Assignments	2	N-gram modeling
5	**Chapter 5 Word Classes and Part-of-Speech Tagging + Chapter 6 Hidden Markov and Maximum Entropy Model**	**12**	
	5.1 English Word Classes 5.2 Tag-sets for English 5.3 Part of Speech Tagging 5.4 Rule based Part of Speech Tagging 5.5 HMM Part of Speech Tagging 5.7.1 Error Analysis	1 1 1 4 2	Overview Overview Detail Overview Detail Detail
	Assignments	2	HMM model & Viterbi
.	Reading assignment and Discussion/presentation of the current POS tagging approaches	1	
6.	Text Classification and Sentiment Analysis using HMM	**5**	
	Tutorial I + II		All Chapters
7	**Revision**		

Reference Books

1. Daniel Jurafsky and James H. Martin, Speech and Language Processing An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition , Prentice Hall; 2nd edition (May 16, 2008) , ISBN-13: 978-131873216, ISBN-10: 0131873210
2. Christopher D. Manning, Hinrich Schütze , Foundations of Statistical Natural Language Processing, The MIT Press; 1st Edition (June 18, 1999), ISBN-10:0262133601, ISBN-13: 978-0262133609

Assessment

Final Exam	60%
Exercises	10%
Assignment and Presentation	20%
Tutorials	10%