



School of Computer Science Syllabus

AM3104PC: NATURAL LANGUAGE PROCESSING

III-I:CSE(AI&ML)								
Course Code	Category	Hours/Week			Credits	Max Marks		
		L	T	P		C	CIE	SEE
AM3104PC	Core	3	0	0	3	25	75	100
Contact Classes:45	Tutorial classes:15	Practical classes: Nil			Total Classes:60			
Prerequisites: None								

Course Objectives: Introduce to some of the problems and solutions of NLP and their relation to linguistics and statistics.

Course Outcomes:

- Show sensitivity to linguistic phenomena and an ability to model them with formal grammars.
- Understand and carry out proper experimental methodology for training and evaluating empirical NLP systems.
- Able to manipulate probabilities, construct statistical models over strings and trees, and estimate parameters using supervised and unsupervised training methods.
- Able to design, implement, and analyze NLP algorithms.
- Able to design different language modeling Techniques.

UNIT - I

Finding the Structure of Words: Words and Their Components, Issues and Challenges, Morphological Models

Finding the Structure of Documents: Introduction, Methods, Complexity of the Approaches, Performances of the Approaches

UNIT - II

Syntax Analysis: Parsing Natural Language, Treebanks: A Data-Driven Approach to Syntax, Representation of Syntactic Structure, Parsing Algorithms, Models for Ambiguity Resolution in Parsing, Multilingual Issues

UNIT - III

Semantic Parsing: Introduction, Semantic Interpretation, System Paradigms, Word Sense Systems, Software.

UNIT - IV

Predicate- Argument Structure, Meaning Representation Systems, Software.

UNIT - V

Discourse Processing: Cohesion, Reference Resolution, Discourse Cohesion and Structure

Language Modeling: Introduction, N-Gram Models, Language Model Evaluation, Parameter Estimation, Language Model Adaptation, Types of Language Models, Language-Specific Modeling Problems, Multilingual and Cross lingual Language Modeling

TEXT BOOKS:

1. Multilingual natural Language Processing Applications: From Theory to Practice – Daniel M. Bikel and Imed Zitouni, Pearson Publication.
2. Natural Language Processing and Information Retrieval: Tanvier Siddiqui, U.S.Tiwary.

REFERENCE:

1. Speech and Natural Language Processing - Daniel Jurafsky & James H Martin, Pearson Publications.



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