



MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

COURSE CONTENT

NATURAL LANGUAGE PROCESSING LAB								
I Semester: CSE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
2415834	Professional Core courses	L	T	P	C	CIA	SEE	Total
		0	0	4	2	40	60	100
Contact Classes: 0	Tutorial Classes: 0	Practical Classes: 60			Total Classes: 60			
Prerequisites: Data structures, finite automata and probability theory								

Course Overview:

The Natural Language Processing Lab provides practical training in implementing text preprocessing and language modeling techniques using Python.

Course Objectives:

1. To understand and implement the fundamental concepts and techniques used in Natural Language Processing.
2. To develop practical skills in text preprocessing techniques such as tokenization, stemming, and stop word removal.
3. To learn and implement linguistic analysis methods including POS tagging, morphology, chunking, and word analysis.
4. To design and implement statistical language models using N-Grams and smoothing techniques.
5. To enhance programming and problem-solving skills by developing NLP applications using Python and related libraries.

Course Outcomes: After Completion of the Course, Students should be able to

1. Implement morphological models and document analysis methods to identify word structures and document components.
2. Analyze the performance of various parsing algorithms and their effectiveness in ambiguity resolution across multiple languages.
3. Implement semantic parsing techniques and word sense disambiguation models to understand and represent the meaning of text.
4. Implement predicate-argument structure models to represent meaning in NLP systems.
5. Implement discourse processing models and language models like n-grams, and apply them to real-world NLP tasks.

LIST OF EXPERIMENTS

Implement the following using Python

1. Tokenization
2. Stemming
3. Stop word removal (a, the, are,..)
4. Word Analysis
5. Word Generation
6. Pos tagging
7. Morphology
8. chunking
9. N-Grams
10. N-Grams Smoothing

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 BOOKS:

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

ELECTRONIC RESOURCES:

1. <https://www.coursera.org/learn/natural-language-processing>
2. <https://www.geeksforgeeks.org/natural-language-processing/>
3. <https://realpython.com/natural-language-processing-spacy-python/>
4. <https://nptel.ac.in/courses/106/106/106106177/>

MATERIALS ONLINE:

1. Course template
 2. Open-ended experiments
 3. Definitions and terminology
 4. Lab Manual
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