



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20CS7E06	NATURAL LANGUAGE PROCESSING	VII	CSE	5	2025-26	09-06-2025

COURSE OUTCOMES

01	Understand NLP problems and survey the literature about that problem. (k3,K6)
02	Explore different ways of parsing techniques for language modeling (K3,K4)
03	Describe automated natural language generation and machine translation (K1,K3)
04	Learn the natural language generation. (K2,K3)
05	Analyze and compare the use of different statistical approaches for different types of NLP applications. (K1,K2)

Unit	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
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UNIT-I

I	CO1: Understand		INTRODUCTION			
		1.01	Introduction and challenges of natural language processing.	T2,R1	1	PPT
		1.02	Phases in natural language processing	T2,R1	1	PPT
			AN OUTLINE OF ENGLISH SYNTAX			
		1.03	Words, The Elements of Simple Noun Phrases	T1	1	Chalk and Talk
		1.04	Verb Phrases and Simple Sentences	T1	1	Chalk and Talk



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II	NLP problems and survey the literature about that problem. (k3,K6)		Noun Phrases Revisited			
		1.05	Adjective Phrases, Adverbial Phrases	T1	1	Chalk and Talk
			GRAMMARS AND PARSING			
		1.06	Grammars and Sentence Structure What Makes a Good Grammar A Top-Down Parser	T1	1	Chalk and Talk
		1.07	A Bottom-Up Chart Parser	T1	2	Chalk and Talk
		1.08	Transition Network Grammars	T1	1	Chalk and Talk
		1.09	Finite State Models and Morphological Processing	T1	1	Chalk and Talk
			FEATURES AUGMENTED GRAMMAR			
		1.10	Some Basic Feature Systems for English, Morphological Analysis and the Lexicon	T1	1	Chalk and Talk
		1.11	A Simple Grammar Using Features	T1	1	Chalk and Talk
		1.12	Parsing with Features	T1	1	Chalk and Talk
		1.13	Augmented Transition Networks	T1	2	Chalk and Talk
		1.14	Generalized Feature Systems and Unification Grammars	T1	1	PPT
			Total		16	
		UNIT-II				
II	CO2: Explore different ways of parsing techniques for language modeling (K3,K4)		GRAMMARS FOR NATURAL LANGUAGE			
		2.01	Auxiliary Verbs and Verb Phrases	T1	1	PPT
		2.02	Movement Phenomena in Language	T1	1	PPT
		2.03	Handling Questions in Context-Free Grammars	T1	1	Chalk and Talk
		2.04	Relative Clauses	T1	1	PPT
		2.05	The Hold Mechanism in ATNS	T1	1	PPT
			TOWARD EFFICIENT PARSING			
		2.06	Human Preferences in Parsing	T1,T2	1	PPT
		2.07	Encoding Uncertainty: Shift-Reduce Parsers	T1,T2	2	Chalk and Talk
		2.08	A Deterministic Parser	T1,T2	1	Chalk and Talk
		2.09	Techniques for Efficient Encoding of Ambiguity	T1	2	PPT
			AMBIGUITY RESOLUTION:			



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		2.10	Basic Probability Theory	T1	1	Chalk and Talk
		2.11	Estimating Probabilities	T1	1	Chalk and Talk
		2.12	Part-of-Speech Tagging	T1	1	Chalk and Talk
		2.13	Obtaining Lexical Probabilities	T1	1	Chalk and Talk
		2.14	Probabilistic Context-Free Grammars	T1	1	Chalk and Talk
		Total			16	
UNIT-III						
III	CO3: Describe automated natural language generation and machine translation (K1,K3)		SEMANTIC INTERPRETATION			
		3.01	Word Senses and Ambiguity The Basic Logical Form Language	T1,T2	1	Chalk and Talk
		3.02	Encoding Ambiguity in the Logical Form Verbs and States in Logical Form	T1,T2	1	PPT
		3.03	Defining Semantic Structure: Model Theory	T1		PPT
			LINKING SYNTAX AND SEMANTICS			
		3.04	Semantic Interpretation and Compositionality	T1,T2	1	Chalk and Talk
		3.05	A Simple Grammar and Lexicon with Semantic Interpretation, Prepositional Phrases and Verb Phrases	T1		PPT
		3.06	Lexicalized Semantic Interpretation and Semantic Roles, Handling Simple Questions	T1,T2	1	Chalk and Talk
		3.07	Semantic Interpretation Using Feature Unification, Generating Sentences from Logical Form	T1		PPT
			AMBIGUITY RESOLUTION			
		3.08	Selectional Restrictions ,Semantic Filtering Using Selectional Restrictions	T1,T2	1	PPT
		3.09	Semantic Networks Statistical Word Sense Disambiguation	T1,T2		Chalk and Talk
		3.10	Statistical Semantic Preferences Combining Approaches to Disambiguation	T1,T2	1	PPT
			OTHER STRATEGIES FOR SEMANTIC INTERPRETATION.			
		3.11	Grammatical Relations, Semantic Grammars	T1,T2	2	PPT
		3.12	Template Matching, Semantically Driven Parsing Techniques	T1	1	PPT



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			Total		9	
UNIT – IV						
IV	CO4: Learn the natural language generation. (K2,K3)		CONTEXT AND WORLD KNOWLEDGE: KNOWLEDGE REPRESENTATION AND REASONING			
		4.01	Knowledge Representation A Representation Based on FOPC	T1	1	Chalk and Talk
		4.02	Frames: Representing Stereotypical Information, Handling Natural Language Quantification	T1		PPT
		4.03	Time and Aspectual Classes of Verbs Automating Deduction in Logic-Based Representations	T1	1	PPT
		4.04	Hybrid Knowledge Representation	T1		PPT
			USING WORLD KNOWLEDGE			
		4.05	Using World Knowledge: Establishing Coherence Matching Against Expectations	T1,R2	1	Chalk and Talk
		4.06	Reference and Matching Expectations Using Knowledge About Action and Causality	T1,R2	1	PPT
		4.07	Scripts: Understanding Stereotypical Situations Using Hierarchical Plans	T1,R2	1	PPT
		4.08	Action-Effect-Based Reasoning Using Knowledge About Rational Behavior	T1,R2		Chalk and Talk
			DISCOURSE STRUCTURE.			
		4.09	The Need for Discourse Structure Segmentation and Cue Phrase	T1	1	PPT
		4.10	Discourse Structure and Reference Relating Discourse Structure and Inference	T1		PPT
		4.11	Discourse Structure, Tense, and Aspect Managing the Attentional Stack An Example	T1	1	PPT
			Total		7	
UNIT – V						
			WORLD KNOWLEDGE AND SPOKEN LANGUAGE:			
		5.01	Defining a Conversational Agent What's Necessary to Build a Conversational Agent?	T1	1	PPT
		5.02	Language as a Multi-Agent Activity	T1		PPT



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V	CO5: Analyze and compare the use of different statistical approaches for different types of NLP application s. (K1,K2)		Representing Cognitive States: Beliefs Representing Cognitive States: Desires, Intentions, and Plans				
		5.03	Speech Acts and Communicative Acts Planning Communicative Acts	T1	1	PPT	
		5.04	Communicative Acts and the Recognition of Intention The Source of Intentions in Dialogue	T1		PPT	
		5.05	Recognizing Illocutionary Acts Discourse-Level Planning	T1		PPT	
			AN INTRODUCTION TO LOGIC MODEL-THEORETIC SEMANTICS				
		5.06	Logic and Natural Language Model-Theoretic Semantics	T1	1	PPT	
		5.07	A Semantics for FOPC: Set-Theoretic Models	T1		Chalk and Talk	
		5.08	Speech Recognition And Natural Language Understanding	T1	1	PPT	
		5.09	APPLICATIONS: Machine Translation	T1	1	Chalk and Talk	
		5.10	APPLICATIONS: Text Classification	T1	1	PPT	
		5.11	Sentimental Analysis.	T1,R1	1	PPT	
			Total			7	
	CUMULATIVE PROPOSED PERIODS			55			
Text Books:							
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION						
01	T V Geetha, - Understanding Natural Language Processing 1 st Edition, Pearson Education, 2024.						
02	Steven Bird, Ewan Klein , Edward Loper — Natural Language Processing with Python: Analyzing Text with the Natural Language Toolkit Paperback – 4 August 2009						
Reference Books:							
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION						
01	U. S. Tiwary and Tanveer Siddiqui, Natural Language Processing and Information Retrieval, Oxford University Press, 2008						
02	NitinIndurkhya and Fred J. Damerau, —Handbook of Natural Language Processing, Second Edition, Chapman and Hall/CRC Press, 2010.						

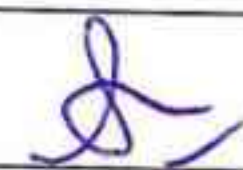

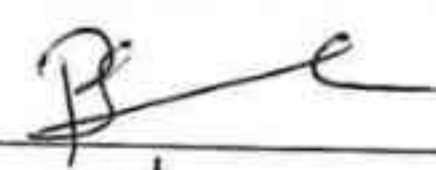


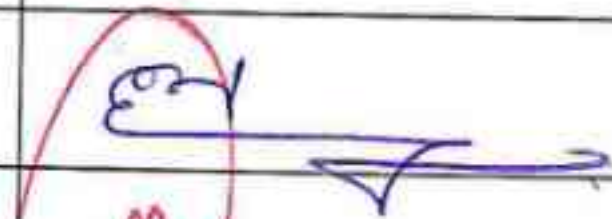



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		Name	Signature with Date
01.	Faculty-I	Dr. S. Suresh Kumar	
02.	Faculty-II	Mr. B. Yugandhar	
03.	Faculty-III	Mr. P. Srinivasa Rao	
04.	Faculty-IV	Mrs. I. Praveena	
0.5	Course Coordinator	Mr. P. Srinivasa Rao	
0.6	Module Coordinator	Mr. K Rajesh Kumar	
0.7	Programme Coordinator	Dr. P. Srinivasulu	


Principal