Course Description Form

1. Course Name:	
Natural Language Processing	
2. Course Code:	
CSAI3108	
3. Semester / Year:	
First / 2024 – 2025	
4. Description Preparation Date:	
2024/9/1	
5. Available Attendance Forms:	
Actual attendance in the form of theoretical and practical lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 Hours / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hiba Basim Alwan Email: 110154@uotechnology.edu.iq	
8. Course Objectives	
Course Objectives	Studying the concept of natural language processing, what its different stages are, and how to create computer programs for these different stages.
9. Teaching and Learning Strategies	
Strategy	• Providing the student with basic and secondary topics related to natural language processing. • Translating theoretical topics and syllabus related to natural language processing into computer-executable algorithms. • Asking the student to use algorithms related to the theoretical syllabus. • allowing the student to explain a small part of the class to his classmates to enhance his self-confidence. • Solve a small part of the homework to encourage students to complete the solution. • Giving class assignments and working in groups to solve these assignments.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	4	1, 2, 3, 4, 5, 6, 7	– Introduction to NLP – Definition of NLp – Stages of NLP	Lectures	Ask questions and discuss them
2	4	1, 2, 3, 4, 5, 6, 7	– What makes NLP hard? – What is Understanding? – What makes understanding hard?	Lectures	Quiz
3	4	1, 2, 3, 4, 5, 6, 7	– Levels of ambiguities – Levels of understanding	Lectures	Homework
4	4	1, 2, 3, 4, 5, 6, 7	– Morphological analysis – The dictionary	Lectures	Quiz
5	4	1, 2, 3, 4, 5, 6, 7	– Syntactic parsing – Syntax analysis – CFG – Top-down parsers tree	Lectures	Quiz
6	4	1, 2, 3, 4, 5, 6, 7	– Bottom-up parsers tree – Transition network parser – Augmented Transition Network (ATN)	Lectures	Quiz

7	4	1, 2, 3, 4, 5, 6, 7	– Formal method lexical analysis – Parsing (rules of English grammar)	Lectures	Homework
8	4	1, 2, 3, 4, 5, 6, 7	– Tree – Transition network	Lectures	Mid Exam
9	4	---	---	---	Mid-Course Exam
10	4	1, 2, 3, 4, 5, 6, 7	Examples of prolog program of English grammar	Lectures	Homework
11	4	1, 2, 3, 4, 5, 6, 7	Extracting meaning from keywords (Docsys)	Lectures	Homework
12	4	1, 2, 3, 4, 5, 6, 7	Introduction to semantic analysis	Lectures	Ask questions and discuss them
13	4	1, 2, 3, 4, 5, 6, 7	Analysing the semantic structure of a sentence	Lectures	Quiz
14	4	1, 2, 3, 4, 5, 6, 7	Examples of Prolog program of English semantic sentences	Lectures	Quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	– Alian Rich, "Artificial Intelligence",1989. – William A. Stubblefield & Luger E.George, "Artificial Intelligence and the Design of Expert Systems", 1998. – Daniel Jurafsky and James H. Martin "Speech and language processing: Introduction to natural language processing, computational linguistics and speech recognition" second edition 2006. – Daniel H. Marcellus "Artificial Intelligence and the design of expert systems" 1998

Recommended books and references (scientific journals, reports…)	Approved Internet sites related to the topic of NLP.
Electronic References, Websites	Any approved website related to the topic of NLP.