

Faculty of Computers & Information Technology

Natural Language Processing

Information :

Course Code : CSC 443

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Computer Science

Instructor Information :

Title	Name	Office hours
Associate Professor	Osama Fathy Saleh Hegazy	1
Teaching Assistant	Mahinda Mahmoud Samy Ahmed Zaki Zidan	1

Area Of Study :

Fundamental concepts and ideas in natural language processing (NLP), also known as computational linguistics. It develops an in-depth understanding of both the algorithms available for the processing of linguistic information and the underlying computational properties of natural languages. Word level, syntactic, and semantic processing from both a linguistic and an algorithmic perspective are considered

Description :

Introduction to computational linguistics in general and natural language processing in particular. Reviewing background material in linguistics and surveying works on topics such as sub-languages, syntactic analysis, context, discourse analysis, application or world knowledge, machine translation, and text generation. Arabic computational linguistics

Course outcomes :

a.Knowledge and Understanding: :

1 -	Identify and discuss the characteristics of different NLP techniques
2 -	Identify and discuss the characteristics of different machine learning techniques used in NLP
3 -	Understand basic processes and representations used in syntax, semantics, and other components of natural language processing
4 -	Understand the design of tools for basic NLP tasks such as tagging and partial parsing and be able to apply them to text
5 -	Understand some of the basic principles of the representation of linguistic meaning and interpretative inference

b.Intellectual Skills: :

1 -	Learn about the areas in which natural language processing is being applied to problems today.
2 -	Be able to describe and discuss the potential and limitations of NLP techniques for applications such as machine translation, question answering, information retrieval and information extraction

c.Professional and Practical Skills: :

1 -	Be able to implement programs for NLP algorithms and techniques
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d.General and Transferable Skills: :

1 -	discuss the characteristics of different NLP techniques
2 -	discuss the characteristics of different machine learning techniques used in NLP
3 -	Be able to describe and discuss the potential and limitations of NLP techniques for applications such as machine translation, question answering, information retrieval and information extraction
4 -	Be able to describe and discuss some of the proposed ideas in any included topic
5 -	Be able to provide his own perspective considering selections of the published ideas

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction To NLP	3	2	2
Finite State Automata	3	2	2
Regular Expressions	3	2	2
Words and Transducers	3	2	2
Formal Grammar of English and Syntactic Parsing	3	2	2
Semantics and Pragmatics	3	2	2
Computational Semantics	3	2	2
Computational Discourse	3	2	2
Applications (Information Retrieval)	3	2	2
Knowledge Discovery	3	2	2
Text Mining	3	2	2
Summarization	3	2	2
Query Answering	3	2	2

Teaching And Learning Methodologies :

Practical training
Lectures
Exercises
Open Discussion
Self Studies
Web-Site searches
Case Study
Projects
Presentation

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Exam	40.00	15	Knowledge and Understanding

Mid Term Exams	30.00	7	Knowledge and Understanding
Project Discussion	10.00	13	Professional and Practical Skills
Quizes	10.00	3	Knowledge and Understanding
Selected Subjects Discussion	5.00	8	General and Transferable Skills
Self Study Discussion	5.00	12	Intellectual Skills