FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Computers and Information Technology

Natural Language Processing

Information :

Course Code :	CS443	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Computer Science

Instructor Information :

Title	Name	Office hours
Associate Professor	Wael Hassan gomaa Mohamed Abuzaid	
Teaching Assistant	Ahmed Mohamed Nasr Abdel Latif El Dafrawy	
Teaching Assistant	Farah Ashraf Wafaa Mahmoud	

Area Of Study :

Understand knowledge that enhances skills in fundamental area of computational properties of natural languages.
Use and adopt fundamental and advanced computational linguistics.
Evaluate effectively the merits of design the NLP system.
Use all available principles and tools of natural language processing.
Comprehend deeply the basic concepts of the computing linguistics.
Develop and evaluate the architecture of NLP system process and components.

Description :

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

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Describe different qualitative and quantitative used in syntax, semantics, and other components of natural language processing
2 -	.Explain the principles and techniques to identify the criteria for current use and future development of different machine learning techniques used in NLP
3 -	Identify the fundamental concepts and theories related to NLP techniques
b.Intellectual Skills: :	
1 -	Select appropriate methodologies and techniques for a given NLP problems solutions and setting out their limitations, restrictions and errors
2 -	Propose a set of alternative solutions for a given NLP problem associated with their results
3 -	Analyze different natural language problems and setting goals and requirements
c.Professional and Practical Skills: :	
1 -	Apply, design methodologies, programming languages, database systems and different supporting tools for NLP systems
2 -	Analyze, design, implement and test NLP systems

d.General and Transferable Skills: :	
1 -	Apply communication skills in presentations and report writing using various methods and tools
2 -	Work in a team to develop the requirement documentation

ABET Course outcomes :	
1 -	Identify the fundamental concepts and theories related to NLP techniques.
2 -	Demonstrate understanding of the principles and techniques to identify the criteria for current use and future development of different machine learning techniques used in NLP.
3 -	Demonstrate understanding of different qualitative and quantitative techniques used for syntax, semantics, and other components of natural language processing
4 -	Analyze different natural language problems, select appropriate methodologies and techniques for the given NLP problems solutions and setting out their limitations, restrictions and errors.
5 -	Analyze, design, implement and test NLP systems.
6 -	Work in a team.
7 -	Communicate effectively

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction To NLP	4	2	2
Finite State Automata	4	2	2
Regular Expressions	4	2	2
Words and Transducers	4	2	2
Formal Grammar of English and Syntactic Parsing	4	2	2
Semantics and Pragmatics	4	2	2
Computational Semantics	4	2	2
Computational Discourse	4	2	2
Mid Term Exam	2		
Knowledge Discovery, Text Mining	4	2	2
Summarization	4	2	2
Query Answering	4	2	2
Revision	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :
Interactive Lectures including Discussions
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Case Studies
Brain Storming and Problem Solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00	4	
Practical Exam	10.00	10	
Presentations	5.00	11	
Quizzes	10.00	5	
Team Work Projects	10.00	13	
Written Final Exam	40.00	14	
Written Midterm Exam (s)	20.00	9	

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)

Recommended books :

Artificial Intelligent : A Modern Approach - (Third edition) by Stuart Russell and Peter Norvig, Publisher: Prentice Hall, latest edition.

Web Sites :

www.ekb.eg
www.ai.com