Course Description Form

1. Course Name:
Speech Recognition
2. Course Code:
CSAI3213
3. Semester / Year:
2nd Semester 2024/2025
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:
Two hours of attendance in the classroom per week
6. Number of Credit Hours (Total) / Number of Units (Total):
2 hours/3 units
7. Course administrator's name (mention all, if more than one name)
Name: Khitam A. Salman Email: khitam.a.salman@uotechnology.edu.iq

8. Course Objectives	
Course Objectives	– **The objective of the course is familiarize students with particular algorithms used speech recognition.** – **The basis to explore general text and speech and machine learning algorithms relev to a variety of other areas in computer science.**

9. Teaching and Learning Strategies	
Strategy	– Understanding automatic speech recognition system. – Study of artificial intelligence algorithms related to a SRS su as : Hidden markov model and Noisy channel model – Application on SR – Speech synthesis-text to speech analysis (CMU dictionary). – MT: Introduction, computer aided human translation.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Every week 2 houre lecture & 2 houre lab.	Understanding spc language problem areas in SR speaker-dependent speaker independent Basic step of spe recognition **Automatic Spe** **Recognition** **Speech processing ta** **Speech recogni** **architecture:** N channel model Hidden mar model Exame **Application on SR** **Speech synthesis-tex** **speech analysis (C** **dictionary):** Text normalizat phonetic analysis (C DICTIONARY) Prosodic anal (prosodic struct prosodic promine tune) **MT: Introduct** **computer aided hur** **translation** CHAT, pre statist architecture **MT TYPES** (di translation, tran approaches interlingua approache Exame	ASR definitior ASR steps ASR tasks ASR **architecture** Exame ASR **Applicat** **CMU dictionary** **MT** **MT TYPES** Exame	Weekly lectures, a display white boa and a computer implement progra and apply algorith using python langua	-Weekly test score - Laboratory test score -Mid-term test -Final test

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

15% laboratory grade 15% semester 10% daily exams final exam 60%

12. Learning and Teaching Resources

Required textbooks (curricu books, if any)	
Main references (sources)	1- Daniel Jurafsky and James H. Martin “Speech and language processing: Introduction to natural language processing, computational linguistics and speech recognition” second edition 2006

	2- Daniel H. Marcellus "Artificial Intelligence and the design of expert systems" 1998
Recommended books and references (scientific journals, reports…)	• Lawrence Rabiner and Biing-Hwang Juang. *Fundamentals of Speech Recognition*. Prentice Hall, 1993. Papers • B. H. Juang and L. R. Rabiner. *Automatic Speech Recognition - A Brief History of the Technology*. Elsevier Encyclopedia of Language and Linguistics, Second Edition, 2005. • Mehryar Mohri. Statistical Natural Language Processing. In M. Lothaire, editor, *Applied Combinatorics on Words*. Cambridge University Press, 2005. • Mehryar Mohri. Weighted automata algorithms. In Manfred Droste, Werner Kuich, and Heiko Vogler, editors, *Handbook of Weighted Automata*. Monographs in Theoretical Computer Science, pages 213-254. Springer, 2009.
Electronic References, Websites	