Subject: Speech Recognition

Lecture	Date	Topics	Hours
	Chapter 1	*Speech and its Types*	3
1	24-07-2022	About speech and speech processing and its application, why speech recognition, aspects of speech, difference between speech and other data, speech sounds, speech processing process, acoustic and articulatory phonetics Lab Work 1: • Analysis of single audio files using librosa • Digitization of speech using speech_recognizer • Human speech production using Google Text to Speech translation Assignment 1: • Speech Analysis of common words	3
	Chapter 2	*Automatic Speech Recognition*	
2	31-07-2022	Acoustic Modelling, Language modelling, HMM, and feature extraction using spectral bandwidth, short term Fourier transform, and MFCC spectral Lab Work 2: • Audio Feature extraction • Spectral analysis Assignment 2: • Spectral analysis on human emotion of happy and sad • Comments on feature extraction for human emotion audios	3
3	07-08-2022	Case Study: Speech Recognition using CNN Lab Work 3: • Building a CNN model to identify emotions from an audio speech Assignment 3: • To design and build a CNN model to identify dysarthria disease	3

* ICA Test – 20 marks each

Dates are tentative | Assignments: 30 marks

Text Books:

1. Xuedong Huang, Alex Acero and Hsiao-wuen Hon, Spoken Language Processing, Prentice Hall (ISBN 0-13-22616-5).

Reference Books:

1. Jinyu Li (Author), Li Deng (Author), Reinhold Haeb-Umbach (Author), Yifan Gong (Author), Robust Automatic Speech Recognition: A Bridge to Practical Applications,1st Edition
2. Jurafsky Martin, Speech And Language Processing, 2nd edition, 2007