

2110432**Automatic Speech Recognition****Course Information**

Overview of current speech technologies; components of human-machine conversational system; acoustic theory of human speech production; spectrogram reading; speech signal representation; algorithmic aspects of speech recognition; Hidden Markov Model (HMM); HMM-based speech recognizer; survey of various approaches to ASR.

Credits	3
Semester / Year	1 st / 2008
Instructors	Atiwong Suchato, Ph.D.
Level	Undergraduate
Hours per week / Schedule	3 / Friday 9:00-12:00

Prerequisites N/A**Course Objectives**

1. Students will know of speech technologies used in current computer applications.
2. Students will understand mathematical formulations of the problem of automatic speech recognition.
3. Students will be able to describe some fundamental techniques used in the field of automatic speech recognition.
4. Students will be able to use tools to incorporate automatic speech recognition capability into computer applications.
5. Students will be able to design speech data collection and training parameters used for creating acoustic models suitable for specific speech recognition tasks in Thai language.

Course Materials

Class resources will be posted at <http://www.cp.eng.chula.ac.th/~atiwong/2110432/>

Course Contents and Schedule

Week	Topics
1	Overview of Speech Technology and ASR
2	Speech Signal Fundamental I
3	Speech Signal Fundamental II
4	Speech Production
5	Sounds in Languages I
6	Sounds in Languages II
7	Word-based Template Matching
8	Probability Review
9	Statistical Classification I
10	Statistical Classification II
11	Hidden Markov Models I
12	Hidden Markov Models II
13	Other Topics in ASR

Course Assessments

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| 1. Class Attendance | 10% |
| 2. Assignments | 30% |
| 3. Final Project | 60% |

Projects are evaluated based on the quality of:

- Written design documents
- Oral presentations
- Resulting computer programs
- Final written report