



# PHONETICS AND PHONOLOGY: A BROAD OVERVIEW

## PROF. SHAKUNTALA MAHANTA

Department of Humanities and Social Sciences  
IIT Guwahati

**INTENDED AUDIENCE :** Engineering Undergraduates or undergraduates in any discipline looking to learn about language and speech

**INDUSTRIES APPLICABLE TO :** Speech Technology industry which needs input in language and speech

## COURSE OUTLINE :

This course will provide the foundation for the development of a student's knowledge on phonetics and phonology. A proper introduction of the theoretical underpinnings and conceptual framework of the scientific study of sound systems and its analysis will be the main focus of this course. It will provide a detailed overview of phonetic properties, articulatory and acoustic descriptions and International Phonetic Alphabet (IPA) transcription of the sounds in the languages of the world. It also deals with phonological theory and covers many aspects of phonemics, phonological representations, features and phonological alternations. Finally, the students will learn about many of these concepts with the help of data analysis and problem-solving. We will include examples from Indian languages to make the material more relevant to the students.

## ABOUT INSTRUCTOR :

Prof. Shakuntala Mahanta specializes in phonology, a branch of linguistics which deals with the human knowledge of sound systems and its organization. As a consequence of working in this specialized area she also works on the interaction of phonology with morphology, phonetics and to a lesser extent with syntax. Over the years, she has worked on various aspects of phonology, sociolinguistics, computational linguistics, Grapheme to Phoneme mapping in Indian linguistics, intonation and information structure. The following is a non exhaustive list of her research areas: 1)Theoretical approaches to vowel harmony 2) Nature of exceptional patterns in language 3) Stress and intonation in South Asian languages 4) Tone and Intonation in Tibeto-Burman languages 5)Intonation & Information Structure 6) Problems in Grapheme to Phoneme mapping in Indian languages 7) Endangered languages of Northeast India and their documentation She has authored a book on vowel harmony (Directionality and Locality in vowel harmony 2008, Utrecht: LOT Press) and she was awarded the Fulbright fellowship for Academic and Professional excellence (FNAPE 2015 -2016).

## COURSE PLAN :

**Week 1 :** Human speech apparatus - Articulation of vowels and consonants, representation of sounds.

**Week 2 :** Sounds of the world's languages: Language endangerment and language varieties

**Week 3 :** Properties of sound: Acoustic analysis: Fourier transform, source-filter theory Resonance, spectrograms, vowels and vowel charts Acoustic properties of consonants and vowels

**Week 4 :** Speech perception:Basic overview of speech perception Categorical perception, VOT and phonetic knowledge Linguistic knowledge Phonetic coherence

**Week 5 :** Identifying phonemes Phonemic analysis: phonemes, allophones, free variants Sonority, Syllables & principles of syllabification

**Week 6 :** Natural class of sounds Distinctive Features & their hierarchical organization Markedness & Underspecification Rewrite rules and rule ordering

**Week 7 :** Phonological alternations Phonological processes (word level processes such as harmony, other local assimilation processes, voicing alternations etc.)Principles of phonological analysis and Morphophonemic rules

**Week 8 :** Suprasegmentals: pitch, intensity and duration Tone languages and pitch accent languages Intonation – sentence level prosody Intonational phonology