

# Bachelor of Audiology & Speech Language Pathology

## Bachelor in Audiology & Speech Language Pathology

### 1.0 Nomenclature

As per UGC Notification of 2014, the nomenclature of the program shall be Bachelor in Audiology and Speech-Language Pathology. B. ASLP is the short form.

### 2.0 Objectives of the B.ASLP program

The objectives of the B.ASLP program are to equip the students with knowledge and skills to

- function as audiologists and speech-language pathologists in different work settings
- understand concepts in speech, language, communication, hearing and disability
- screen, evaluate, diagnose and assess the severity of different disorders related to speech, language, swallowing and hearing,
- manage speech, language, swallowing and hearing disorders across life span
- counsel persons with disorders of communication and their family members
- rehabilitate persons with speech, language, swallowing and hearing disorders
- prevent speech, language, swallowing and hearing disorders
- liaise with professionals in allied fields and other stake holders
- implement public awareness and education program,
- undertake advocacy measures on behalf of and for persons with speech language and hearing disorders

### 3.0 Duration of the program

- a) The program shall be of 4 academic years including 1 year of internship and should be completed within six years from the date of admission.
- b) An academic year consists of two semesters, and each semester shall extend over a minimum period of sixteen weeks excluding examination days. The semesters shall be spread out as follows:

Odd semester – 1	July – December
Odd semesters – 3, 5, 7	June – October/November
Even semesters – 2, 4, 6, 8	December – April

- c) There shall be examinations at the end of each semester. There shall be a vacation of minimum 1 week after the examinations at the end of odd semesters and 3 weeks after the examinations at the end of even semesters.
- d) Number of working days in a semester shall not be more than 100 days.

### 4.0 Eligibility for admission

- a) The candidate applying for admission to B.ASLP program should have passed 10+2 examination or an equivalent examination conducted by the Pre University Board of Education of the respective State Government securing a minimum of 50% marks. Relaxation in the qualifying marks shall be as per rules and regulations of respective University / State/UTs or Central Government.

- b) The applicant/candidate should have studied Physics, Chemistry, Biology and any one of Mathematics / Computer Science / Statistics / Electronics / Psychology.
- c) Applicants shall not be older than 25 years on the 1<sup>st</sup> July of the year of admission.

### **5.0 Attendance**

- a) Minimum attendance shall be as stipulated by the respective University where the students are studying. However, attendance shall not be less than 80% in theory and 90% in Clinical/ Practicals in each semester to be eligible to appear for examination at the end of each semester.
- b) Candidates who cannot appear for the examination for want of attendance will be declared as failed and will have to repeat the particular semester to be eligible to appear for exams subsequently.
- c) Condonation of shortage of attendance in genuine cases shall be from the Vice-Chancellor of the respective University where the candidates are studying.

### **6.0 Criteria for passing**

The student is required to obtain a minimum of 50% in each of the theory papers, internal assessment, practical and clinical exams for a pass. Students will not be able to appear for University theory exam if they do not pass in their practical, internal assessment or clinical component. Students will have to pass the clinical examination of the given semester to proceed to the next semester.

### **Carry-over of papers**

6.1 Each paper should be successfully completed within 3 attempts including the first one.

6.2 Students can start internship after the 6<sup>th</sup> semester exams. However, students who fail in their clinical exam of 6<sup>th</sup> semester will have to discontinue internship. The candidates are permitted to carry over the theory courses until the end of the program.

### **7.0 Clinical internship**

All candidates shall complete a clinical internship of one academic year (10 months) after the 6<sup>th</sup> semester. The rules and regulations of clinical internship shall be as in Annexure 2.

### **8.0 Award of Degree**

The University shall award the degree and issue certificate only after the candidates successfully complete all the University examinations and clinical internship.

## **Guidelines for implementation of Clinical Internship of B.ASLP program with effect from the academic session 2017-18**

Objectives of the clinical internship are to:

- a) facilitate transition from academic training to independent clinical responsibility,
- b) provide additional inputs to attain and maintain competence in the clinical management of persons with communication disorders,
- c) initiate group and individual action focusing on prevention/early identification and intervention in individuals with speech, hearing and language impairments at the level of the individual, family and community, and
- d) provide training to understand professional responsibilities and ethical practices including :
  - i) Rights and dignity of patients.
  - ii) Consultation and referral to other professionals.
  - iii) Conduct and professional obligations to peers/patients/families and the community at large.

### **Guidelines**

- 1) Internship is mandatory
- 2) Duration: One academic year (10 months) split in to two semesters (VII & VIII).
- 3) Eligibility: Internship will start immediately after the candidate completes the academic and clinical training till the 6<sup>th</sup>semester. Students can start internship after the 6<sup>th</sup>semester exams. However, students who fail in their clinical exam of 6<sup>th</sup>semester will have to discontinue internship.
- 4) Structure and duration of posting
  - a) The respective parent institutions shall decide on the institutions where their students will be posted for internship. However, students can be posted for internship only at those institutions approved by the Rehabilitation Council of India.
  - b) Students will do internship at their parent institute for one semester and at an institute(s) outside the parent institute for one semester. Internship can be done at institutes like hospitals, special educational centers/schools, centers where clinical facilities for management of ASD, cochlear implantation, AVT etc. are available, centers which undertake empowering of mothers, centers for CP, and centers for LD, etc. Attempts must be made to provide clinical training to students in a variety of set ups.
  - c) It shall be mandatory to provide additional clinical training to students in such areas as management of neurologically afflicted persons, prevention and early intervention programs, community based rehabilitation, occupational health programs, structural abnormalities related to speech and hearing, etc.
- 5) Mode of supervision during internship: Supervision should generally be provided by a Speech-language Pathologist and Audiologist. However, in institute/centers where this is not feasible, supervision can be done by a specialist from an allied area like Otolaryngology, Neurology, Mental Health, Pediatrics, among others.
- 6) Maintenance of records by students: Every student shall maintain records of the number of hours of clinical work in different areas and institutions. This should be certified by the head of the

institution or his/her nominee where the student is undergoing internship.

- 7) Leave: Candidates should have an attendance of at least 90% during the internship period. Internship shall be extended by the number of days the student falls short of 90% attendance. Compensatory work for shortage of attendance must be completed before the final clinical exams of 8<sup>th</sup> semester.
- 8) Stipend: As per the norms of the parent institute.
- 9) Grading and evaluation of student: All internees will be assessed based on their attendance, performance in the postings and presentation of log books. The mode of assessment and frequency of assessment will be prescribed by the institute. The student is required to repeat those postings in which his/her performance is below 40%.
- 10) Certification: The parent institute will award a certificate after successful completion of the internship and clinical examination (7.1 and 7.2 in the Scheme of examination). Supervised clinical hours spent during internship shall be included in the clinical competence certificate issued to students.
- 11) The University shall award the degree only after the successful completion of clinical internship.



# LINGUISTICS AND PHONETICS

Course Code: ASL2109

Credit Units: 05

**Course Objectives:** After completing this course, the student will be able to understand

- different branches and aspects of linguistics
- characteristics and functions of language
- different branches of phonetics, applied linguistics, and phonology
- morphology, syntax, semantics, pragmatics
- acquisition of language and factors affecting it
- bi/multilingualism and related issues

**Course Contents:**

## Module-I: Linguistics

- Introduction to linguistics and different branches of linguistics: applied linguistics, sociolinguistics, psycholinguistics, metalinguistics, neurolinguistics and clinical linguistics
- Language characteristics and functions, difference between animal communication systems and human language
- Morphology – concepts of morph, allomorph, morpheme, bound free and compound forms, roots etc.
- Processes of word formation, content and function words
- Endocentric and exocentric constructions, form classes, grammatical categories
- Inflection and derivation, paradigmatic and syntagmatic relationship
- Principles and practices of morphemic analysis
- Langue versus parole
- Competence vs. performance

## Module-II: Phonetics and Phonology

- Introduction to phonetics
- Articulatory, acoustic, auditory and experimental phonetics – an introduction
- Articulatory classification of sounds – segmental and supra-segmental
- Classification description and recognition of vowels and consonants
- Pathological aspects of speech sound production
- Transcription systems with special emphasis on IPA. Transcription of samples of normal and disordered speech
- Introduction to phonology, classification of speech sounds on the basis of distinctive features and phonotactics
- Application of distinctive feature theory to speech pathology and speech therapy, phonotactics, phonotactic patterns of English and Indian languages
- Phonemic analysis – Principles and practices; their practical implications for speech pathologists
- Common phonological processes - assimilation, dissimilation, metathesis, haplology, epenthesis, spoonerism, vowel harmony, nasalization, neutralization

## Module-III: Morphology, syntax, semantics and applied linguistics

- Morphology – concepts of morph, allomorph, morpheme, roots, compound forms - endocentric and exocentric constructions, free and bound morphemes, inflection and derivation, principles and practices of morphemic analysis
- Syntax – different methods of syntactic analysis
- IC analysis, phrase structure, grammar, transformational generative grammar

- d) Introduction to the major types of transformations
- e) Sentence types, notions about competence versus performance
- f) Deep structure versus surface structure
- g) Acceptability versus grammaticality language versus parole etc.
- h) A brief introduction to semantics – semantic feature theory, pragmatics
- i) Processes of word formation, content and function words, form classes, grammatical categories
- j) Syntax – concepts of phrases and clauses, sentence and its types
- k) Different methods of syntactic analysis – Immediate constituent analysis, Phrase structure, grammar, transformational generative grammar– deep structure versus surface structure, acceptability versus grammaticality; Introduction to the major types of transformations
- l) Usefulness of morphemic and syntactic analysis in planning speech and language therapy
- m) A brief introduction to semantics, semantic relations, semantic feature theory
- n) A brief introduction to pragmatics and discourse.

**Module-IV: Language acquisition**

- a) Issues in first language acquisition
- b) Pre-linguistic stages, linguistic stages
- c) Acquisition of phonology, morphology, syntax, semantics, and pragmatics
- d) Language and cognition
- e) A brief introduction to theories and models of language acquisition
- f) Biological maturation theory, linguistic theory, behavioral theory, information processing theory, social interaction theory
- g) An integrated approach to theories communicative competence and its development
- h) Applied linguistics with special reference to communication disorders
- i) Usefulness of morphemic and syntactic analysis in planning speech and language therapy

**Module-V: Bi/multilingualism**

- a) Introduction to the language families of the world and India
- b) Issues related to second language acquisition & factors influencing it
- c) Inter-language theory, language transfer and linguistic interference
- d) Differences between first and second language acquisition/learning
- e) Bilingualism/Multilingualism
- f) Metaphonology
- g) Writing systems – types of writing
- h) History of writing systems
- i) Indian writing systems

**Examination Scheme:**

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Ball & Martin (1995). Phonetics for speech pathology. Delhi: AITBS Publishes, India.
- Ball, Rahilly&Tench (1996). The phonetic transcription of disordered speech. San Diego: Singular Publishing Group Inc.
- Clark and Yallop (1999). An introduction to phonetics and phonology. Oxford: Blackwell Publishes Inc.
- Karanth, P (2003). Cross-Linguistic study of Acquired Reading Disorders. Sage Publications, New Delhi. ISBN : 0-306-48319-X
- Ladefoged, P. (1982). A course in phonetics. New York: Harcourt Brace Jovanorich Inc.

- Shriberg & Kent (1982). *Clinical phonetics*. New York: John Wiley & Sons.



# ELECTRONICS AND ACOUSTICS

**Course Code: ASL2110**

**Credit Units: 05**

**Course Objectives:** After completing this course, the student will be able to understand the

- concept and types of power supply for biomedical instruments
- basic aspects of digital signal processing
- theoretical basis of acoustics required for audiologists
- functioning of computers and computing systems

**Course Contents:**

## **Module-I: Electronic components and power supply**

- a) Resistors, capacitors, inductors
- b) Transformers and potentiometers,
- c) Semiconductor diodes and transistors
- d) Light emitting devices, seven segment displays, Liquid crystal displays
- e) Principles of operations and working of Field Effect Transistors, Uni-junction transistors and thyristors
- f) Introduction to linear and digital integrated circuits
- g) Block diagram of a DC power supply
- h) Linear regulated power supplies, line regulation and load regulation, specifications of a DC power supply unit, Switched Mode Power Supply
- i) AC power supply, stabilizers, Uninterrupted Power Supply, and inverters
- j) Basic electronic concepts such as Polarity, Grounding

## **Module-II: Introduction to acoustics**

- a) Vibrations and their characteristics
- b) Sound - generation and propagation
- c) Characteristics of sound
- d) Amplitude, frequency and phase of pure tones
- e) Amplitude, frequency and phase of complex tones (FFT and spectrum, relationship between time waveform, FFT and impulse response)
- f) Reflection and absorption, acoustic impedance, reverberation
- g) Impedance and admittance
- h) Electro-mechano-acoustic transformers

## **Module-III: Acoustical treatment, transducers and basics of computers**

- a) Introduction to audiometric rooms
- b) Absorption coefficient, Sabine's formula
- c) Materials for construction of audiometric rooms
- d) Lighting, grounding and other miscellaneous issues related to audiometric rooms
- e) Evaluation of efficiency of sound proofing in the audiometric rooms
- f) Amplifiers
- g) Microphones, loudspeakers - types and function
- h) Fundamentals of digital electronics, binary number system, Hex code, bit, byte, logic gates, counters, flip-flops etc.
- i) Introduction to computers
- j) Operating systems, hard ware, software, memory devices and other peripherals, care and preventive maintenance of computers

#### **Module-IV: Digital signal processing**

- a) Digital signal processing –introduction and need
- b) Analog to digital converters, sampling and quantization
- c) Fundamentals of digital filtering
- d) Infinite impulse response and finite impulse response filters
- e) Time domain methods of speech processing
- f) Frequency domain methods of speech processing
- g) Linear predictive analysis of speech signals
- h) Digital coding of speech signals
- i) Automatic speech recognition
- j) Speech synthesis

#### **Module-V: Instrumentation in speech and hearing**

- a) Introduction to electronic instrumentation in speech and hearing
- b) Electrodes, filters and preamplifiers
- c) Principle of operations, block diagram, calibration, maintenance and troubleshooting of audiometers, immittance meters, oto-acoustic emissions, hearing aids, evoked potential system, speech and voice analyses systems, artificial larynx, electroglottograph

#### **Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

#### **Recommended Reading**

- Houghton, P., & Houghton, P. M. (2002). Acoustics for Audiologists (1st edition.). San Diego, Calif: Emerald Group Publishing Limited.
- Moser, P. (2015). Electronics and Instrumentation for Audiologists. Psychology Press.
- Moser, P. J. (2013). Electronics and Instrumentation for Audiologists. Psychology Press.
- Rout, N and Rajendran, S. (2014). Hearing aid trouble shooting and Maintenance, Published by National Institute for Empowerment of Persons with Multiple Disabilities, Chennai. Freely downloadable from <http://niepmd.tn.nic.in/publication.php>. ISBN 978-81-928032-1-0.
- Speaks, C. E. (1999). Introduction To Sound: Acoustics for the Hearing and Speech Sciences (3 edition.). San Diego: Cengage Learning.
- Villchur, E. (1999). Acoustics for Audiologists (1 edition.). San Diego, Calif: Delmar Cengage Learning.

**Syllabus - Second Semester**

## **PRACTICALS IN SPEECH-LANGUAGE PATHOLOGY**

**Course Code: ASL2210**

**Credit Units: 07**

### **Practicals**

- a) Demonstrate normal aspects of speech and analyse perceptually variations in voice, articulation and fluency in different recorded speech samples of typical individuals at different age groups (children, adults and older adults) and sex.
- b) Demonstrate normal aspects of language and analyse perceptually variations in language in different recorded samples of typical individuals at different age groups (children, adults and older adults) and sex.
- c) Demonstrate stress, rhythm and intonation and variations in rate of speech and analyse perceptually variations in prosody in different recorded samples of typical individuals at different age groups (children, adults and older adults) and sex.
- d) Use IPA to transcribe spoken words.
- e) Record a standard passage, count number of syllables and words, identify syllable structure, syntactic structures in the passage.
- f) Oral mechanism examination on 5 normal children and 5 normal adults.
- g) Prepare a chart and show the developmental stages of speech and language behavior.
- h) Administer standardized tests for assessment of delayed speech and language development such as REEL, SECS, LAT, 3DLAT, ALD each on any 2 children.
- i) Study the available normative data (Indian/Western) of speech such as respiratory, phonatory, resonatory and articulatory parameters.
- j) Measure the following in 5 normal subjects: (a) Habitual frequency (b) Frequency range (c) Intensity (d) Intensity range (e) Phonation duration (f) rate of speech (g) Alternate Motion Rates and Sequential Motion Rates (h) s/z ratio.
- k) Study the available normative data (Indian/Western) of language such as phonology, semantics, syntax, morphology and pragmatic measures.
- l) Perceptual analysis of speech and language parameters in normal (2 children and 2 adults and persons with speech disorders (3 adults + 3 children).
- m) Prepare a model diagnostic report of a patient with speech and language disorder.
- n) Prepare a diagnostic and therapy kit.
- o) Make a list of speech language stimulation techniques and other therapy techniques for various speech disorders.
- p) Familiarize with the sources for referral and parent counseling procedures.
- q) Prepare a report on the available audiovisual material and printed material/pamphlets relating to speech-language pathology, public education of communication and hearing disorders, etc.
- r) Prepare a report on the available clinical facilities and clinical activities of the institute.

### **Clinical Practicum**

- a) Observe the evaluation process and counselling of at least 5 different speech and language disorders in children.
- b) Observe the evaluation process and counselling of at least 5 different speech and language disorders in adults.
- c) Take case history of a minimum of 10 individuals (5 normal & 5 clients with complaints of speech-language problems).
- d) Observation of diagnostic procedures.
- e) Observe various therapeutic methods carried out with children and adults with speech and language disorders.

**Examination scheme:**

<b>Components</b>	<b>CRW</b>	<b>C/P/A</b>	<b>CT</b>	<b>A</b>	<b>Viva</b>
<b>Weightage (%)</b>	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

## PRACTICALS IN AUDIOLOGY

Course Code: ASL2211

Credit Units: 07

### Practicals

#### Calculate/derive the answers for following

- a) Calculate the relative intensities with different reference intensities.
- b) Calculate decibels when sound intensities are doubled, increased by 4 times
- c) Add decibels when two sounds with different intensities are produced simultaneously
- d) Collect pictures of audiometers that existed between 1920 and 1990.

#### Perform the following experiments

- a) Calculate reference equivalent sound pressure levels (RETSPL) for head phones and bone vibrator for any two frequencies using 30 participants.
- b) Measure most comfortable level on 10 participants with normal hearing sensitivity.
- c) Measure uncomfortable levels on 10 participants with normal hearing sensitivity.
- d) Calculate the sensation levels of MCL and UCLs in above 10 participants.
- e) Measure difference limen of intensity, frequency and duration on 10 normal hearing adults and plot it in graphical form and interpret the results.
- f) Measure equal loudness level contours at minimum level, 40 dB SPL, 70 dB SPL (1 kHz) in 5 normal hearing adults.
- g) Measure sone and mel in 5 normal hearing adults using scaling techniques.
- h) Take case history on 5 adults and 5 children with hearing problem and correlate the information from case history to results of pure tone audiometry.
- i) Administer different tuning fork tests on 5 simulated conductive and 5 sensori neural hearing loss individuals.
- j) Carry out pure tone and speech audiometry on 10 normal hearing individuals.
- k) Carry out clinical masking on 10 normal hearing individuals with simulated conductive hearing loss and carry out clinical masking on 5 individuals with conductive hearing loss and 5 individuals with sensori-neural hearing loss.
- l) Carryout daily listening checks and subjective calibrations 20 times and observe objective calibration once
- m) Perform otoscopy and draw the tympanic membrane of 10 healthy normal individuals
- n) Measure difference limen of intensity, frequency and duration on 10 normal hearing adults and plot it in graphical form and interpret the results
- o) Measure equal loudness level contours at minimum level, 40 dB SPL, 70 dB SPL (1 kHz) in 5 normal hearing adults
- p) Measure sone and mel in 5 normal hearing adults using scaling techniques
- q) Take case history on 5 adults and 5 children with hearing problem and correlate the information from case history to results of pure tone audiometry
- r) Administer different tuning fork tests on 5 simulated conductive and 5 sensori neural hearing loss

- individuals
- s) Carry out pure tone and speech audiometry on 10 normal hearing individuals.
  - t) Carry out clinical masking on 10 normal hearing individuals with simulated conductive hearing loss and carry out clinical masking on 5 individuals with conductive hearing loss and 5 individuals with sensori-neural hearing loss
  - u) Carryout daily listening checks and subjective calibration 20 times and observe objective calibration once

**Clinical Practicum**

- a) Observe case history being taken on 5 adults and 5 children with hearing problem and correlate the information from case history to results of pure tone audiometry.
- b) Administer different tuning fork tests on 5 conductive and 5 sensori neural hearing loss individuals.
- c) Observe the pure tone audiometry being carried out on 30 clients.
- d) Plot the audiogram, calculate the pure tone average and write the provisional diagnosis of observed clients.
- e) Perform otoscopy (under supervision) on at least 1 client with following conditions: Tympanic membrane perforation, SOM, CSOM

**Examination scheme:**

<b>Components</b>	<b>CRW</b>	<b>C/P/A</b>	<b>CT</b>	<b>A</b>	<b>Viva</b>
<b>Weightage (%)</b>	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

# Syllabus - Third Semester

## VOICE AND ITS DISORDERS

**Course Code: ASL2307**

**Credit Units: 05**

**Course Objectives:** After completing this course, the student will be able to

- describe characteristics of normal voice and identify voice disorders
- explain etiology related to voice problems, and its pathophysiology
- assess voice disorders
- provide counselling and therapy to individuals with voice disorders

**Course Contents:**

### **Module-I: Basic concepts in voice and its production**

- a) Definition and functions of voice – biological and non-biological
- b) Parameters of voice
- c) Structures and function of respiratory system for the purpose of phonation
- d) Laryngeal anatomy – Structural support of larynx, muscles, vocal fold microstructure, blood supply, and innervations
- e) Vocal tract resonance and voice quality
- f) Development of voice: Birth to senescence; structural and voice related changes
- g) Aerodynamic myo-elastic theory of voice production
- h) Voice mechanics – Physiologic, acoustic and aerodynamic correlates of voice
- i) Pitch and loudness changing mechanism, voice registers and voice quality
- j) Description of normal and abnormal voice: Parametric, pathologic/perceptual, social

### **Module-II: Characteristics and pathophysiology of voice disorders**

- a) Pathologies of the laryngeal mechanism: classification of voice disorders, incidence, and prevalence
- b) Etiology of voice disorders: voice misuse and abuse, medical related etiologies, primary disorder etiologies and personality related etiologies
- c) Pathologies of vocal fold cover (infective and trauma related secondary conditions) and muscular dysfunction
- d) Non-organic voice disorders: functional disorders, psychosomatic- functional aphonia and physiological- voice abuse, puberphonia)
- e) Congenital voice disorders
- f) Neurological voice disorders
- g) Voice problems in systemic illnesses and endocrine disorders
- h) Voice problems in transgenders
- i) Voice problems in the elderly
- j) Voice problems in professional voice users: teachers and singers

### **Module-III: Assessment of voice**

- a) Referral sources, medical examination and team approach
- b) Protocol for voice assessment: components and philosophies (ICF, ICD)
- c) Clinical voice laboratory: principles of instrumental measurements – electrical error, electrical safety, hygiene safety; recording of data; storage; patented softwares, free wares
- d) Perceptual evaluation of voice: GRBAS, CAPE -V
- e) Visualization procedures- indirect laryngoscopy, video laryngoscopy & stroboscopy



- f) Acoustic analysis of voice: F0 related measures, intensity related measures, quality related measures, phonetogram, DSI
- g) Electroglottography and inverse filtering procedures
- h) Aerodynamic analysis of voice: static & dynamic measures
- i) Self-evaluation of voice : PROM, VHI, V-DOP
- j) Reporting of voice findings, normative comparisons, differential diagnosis

#### **Module-IV: Management of voice**

- a) Voice therapy orientation: basic principles, goal setting and approaches
- b) Vocal hygiene and preventive counselling
- c) Symptomatic voice therapy – voice facilitation techniques
- d) Psychological approaches to voice therapy – psychoanalysis, rational emotive therapy and cognitive behavior therapy
- e) Physiological approach – breathing and postural techniques
- f) Holistic voice therapy approaches -1: accent therapy, confidential voice therapy,
- g) Holistic voice therapy approaches - 2: vocal function exercises, resonant voice therapy, Lee Silverman voice therapy
- h) Medical and surgical procedures in the treatment of benign vocal fold lesions: pharmaceutical effects on voice, phono surgery : re-innervation techniques, laryngeal framework surgeries, micro laryngeal excision
- i) Professional voice care

#### **Module-V: Intervention strategies for voice disorders**

- a) Vocal trauma related disorders
- b) Functional voice disorders – inappropriate vocal components
- c) Functional aphonia
- d) Puberphonia/mutational falsetto
- e) Muscle tension dysphonia
- f) Sulcus vocalis
- g) Vocal fold palsy
- h) Spasmodic dysphonia
- i) GERD/LPR
- j) Benign vocal fold lesions requiring surgical intervention
- k) Post-operative care for benign vocal fold lesions disorders
- l) Documenting voice therapy outcomes

#### **Practicals**

- a) Record phonation and speaking samples (counting numbers) from five children, adult men, adult women, geriatric men and geriatric women. Note recording parameters and differences in material.
- b) Make inferences on age and sex differences across the samples obtained in the previous experiment using perceptual voice profiling. Make a note of differences in pitch, loudness, quality and voice control. Explain how voice reflects ones personality and other social needs.
- c) Perform an acoustic voice analysis on phonation sample and generate a voice report based on acoustic findings. Compare findings between men & women.
- d) Perform MPT and s/z ratio. Infer differences across age and sex.
- e) Perform spirometry or any other appropriate aerodynamic procedure. Infer differences across age and sex.
- f) Perform acoustic analysis on five abnormal voice samples.
- g) Observe and document findings from five laryngeal examinations (pre-recorded or live) such as

- VLS, stroboscopy or any other relevant.
- h) Administer a PROM on five individuals.
- i) Prepare a vocal hygiene checklist.
- j) Demonstrate therapy techniques such as vocal function exercise, resonant voice therapy, digital manipulation, push pull, relaxation exercises.

**Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Stemple, J. C., Glaze, L. E., & Gerdeman, B, K. (2014). Clinical voice pathology: Theory & Management (5th Ed.). San Diego: Plural publishers.
- Aronson, A.E. & Bless, D. M. (2009). Clinical Voice Disorders.(4th Ed.). New York: Thieme, Inc.
- Boone, D. R., McFarlane, S. C, Von Berg, S. L. & Zraick, R, I. (2013): The Voice and Voice Therapy. (9th Ed.). Englewood Cliffs, Prentice-Hall, Inc. New Jersey.
- Professional Voice: Assessment and Management. Proceedings of the national workshop on “Professional Voice: Assessment and management”, 9-10 Dec 2010. All India Institute of Speech & Hearing, Mysore. 2010.
- Andrews, M. L. (2006). Manual of Voice treatment: Pediatrics to geriatrics (3rd Ed.). Thomson Delmar Learning.
- Colton, R. H, Casper, J. K. & Leonard, R. (2006). Understanding voice problems. Baltimore: Williams & Wilkins.
- Sapienza, C. M., & Ruddy, B H. (2013). Voice Disorders.(2nd Ed.). San Diego: Plural Publisher.
- Voice: Assessment and Management. Proceedings of the national workshop on “Voice: Assessment and management”, 14-15 Feb 2008. All India Institute of Speech & Hearing, Mysore. 2008.

# SPEECH SOUND DISORDERS

**Course Code: ASL2308**

**Credit Units: 05**

**Course Objectives:** After completing this course, the student will be able to

- describe normal speech sound development and characterization of individuals with speech sound disorders.
- perform phonological analysis and assessment of speech sound disorders.
- plan intervention for individuals with speech sound disorders.

**Course Contents:**

## **Module-I: Speech sound acquisition and development**

- a) Fundamentals of articulatory phonetics - phonetic description of vowels & consonants.
- b) Phonology & phonological theories – generative phonology, natural phonology.
- c) Phonology & phonological theories – non-linear phonology, optimality theory.
- d) Methods to study speech sound acquisition – diary studies, cross sectional studies and longitudinal studies.
- e) Speech sound acquisition
  - i. birth to one year (development of infant speech perception, early speech production).
  - ii. one to two years (consonant inventories, influence of phonological knowledge on vocabulary acquisition).
  - iii. two to five years (growth of phonetic, phonemic, phonotactic inventory – consonants, clusters, phonological patterns).
  - iv. above five years (speech sound mastery and development of literacy – phonological awareness).
  - v. Factors influencing speech sound acquisition
- f) Acoustics of speech sounds
- g) Speech intelligibility, factors affecting speech intelligibility, assessment of speech intelligibility
- h) Co articulation: types and effects
- i) Phonological development in bilingual children.
- j) Phonological development in Indian languages.

## **Module-II: Assessment of speech sound disorders - I**

- a) Current concepts in terminology and classification of speech sound disorders
  - i. Organically-based speech sound disorders, childhood apraxia of speech.
  - ii. Speech sound disorders of unknown origin, classification by symptomatology.
- b) Factors related to speech sound disorders
  - i. structure and function of speech & hearing and oro-sensory mechanisms.
  - ii. cognitive – linguistic, psychosocial and social factors.
  - iii. metalinguistic factors related to speech sound disorders.
- c) Introduction to assessment procedures: aims of assessment, screening and comprehensive assessment.
- d) Speech sound sampling procedures - issues related to single word and connected speech samples; imitation and spontaneous speech samples, contextual testing, recording of speech samples.
- e) Review of tests in English and other Indian languages - Single word articulation tests, deep articulation of articulation, and computerized tests of phonology.
- f) Influence of language and dialectal variations in assessment.

- g) Transcription of speech sample - transcription methods –IPA and extension of IPA; broad and narrow transcription.

### **Module-III: Assessment of speech sound disorders - II**

- a) Introduction to independent and relational analysis.
- b) Independent analyses – phonetic inventory, phonemic inventory and phonotactic inventory (utility of independent analysis for analysis of speech of young children and children with severe speech sound disorders).
- c) Relational analyses – SODA, pattern analysis, (distinctive features, phonological process analysis).
- d) Phonological processes analyses - language specific issues, identification and classification of errors.
- e) Assessment of oral peripheral mechanism.
- f) Speech sound discrimination assessment, phonological contrast testing.
- g) Stimulability testing.
- h) Determining the need for intervention – speech intelligibility and speech severity assessment.
- i) Factors influencing target selection – stimulability, frequency of occurrence, developmental appropriateness, contextual testing, and phonological process analysis.
- j) Case study – Documenting the assessment findings and determining the need for intervention.

### **Module-IV: Management – I**

- a) Basic considerations in therapy – target selection, basic framework for therapy, goal-attack strategies, organizing therapy sessions, individual vs. group therapy.
- b) Treatment continuum – establishment, generalization and maintenance; measuring clinical change.
- c) Facilitation of generalization.
- d) Maintenance and termination from therapy.
- e) Motor-based treatment approaches – Principles of motor learning.
- f) Discrimination/ear training and sound contrast training.
- g) Establishing production of target sound – imitation, phonetic placement, successive approximation, context utilization.
- h) Traditional approach, contextual/sensory-motor approaches.
- i) General guidelines for motor-based treatment approaches.
- j) Use of technology in articulation correction.

### **Module-V: Management – II**

- a) Core vocabulary approach.
- b) Introduction to linguistically-based treatment approaches- Distinctive feature therapy.
- c) Minimal pair contrasts therapy.
- d) Metaphon therapy, Cycles approach.
- e) Broad-based language approaches.
- f) General guidelines for linguistically-based approaches.
- g) Phonological awareness and phonological disorders.
- h) Phonological awareness intervention for preschool children.
- i) Adapting intervention approaches to individuals from culturally and linguistically diverse backgrounds.
- j) Role of family in intervention for speech sound disorders.

### **Practicals**

- a) List the vowels and consonants in your primary language and provide phonetic and acoustic descriptions for the speech sounds.
- b) Identify the vowels and consonants of your language on the IPA chart and practice the IPA symbols by transcribing 25 words.

- c) Make a list of minimal pairs (pairs of words which differ by only one phoneme) in English.
- d) Make a list of minimal pairs in any language other than English.
- e) Identify the stages of speech sound acquisition by observations from videos of children from birth to 5 years of age.
- f) Record the speech of a two year old typically developing child, transcribe and analyze the speech sample.
- g) Record the speech of one typically developing child from 3-5 years of age (include single word and connected speech samples), transcribe the sample, and perform phonological assessment.
- h) Analyze transcribed speech samples of typically developing children – practice independent and relational analysis.
- i) Practice instructions for phonetic placement of selected sounds.
- j) Develop a home plan with activities for any one section of phonological awareness in English and in one Indian language.

**Examination Scheme:**

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Bernthal, J.E., Bankson, N.W., & Flipsen, P. (2013). Articulation and phonological disorders.(7th Ed.). Boston, MA: Pearson.
- Dodd, B. (2013). Differential diagnosis and treatment of children with speech disorder.(2nd Ed). NJ: Wiley.
- Rout, N (Ed)., Gayathri, P., Keshree, N and Chowdhury, K (2015). Phonics and Phonological Processing to Develop Literacy and Articulation; A Novel Protocol. A publication by NIEPMED, Chennai. Freely downloadable from
- <http://niepmd.tn.nic.in/publication.php>. ISBN 978-81-928032-9-5
- Vasanta, D. (2014). Clinical applications of phonetics and phonology. ISHA Monograph.Vol 14, No. 1.Indian Speech & Hearing Association.
- Velleman, S. L (2003). Resource guide for Childhood Apraxia of Speech.Delmar/Thomson Learning.
- Williams, A., McLeod, S., & McCauley, R. (2010). Interventions for speech sound disorders in children. Baltimore: Brookes.

# DIAGNOSTIC AUDIOLOGY: BEHAVIOURAL TESTS

Course Code: ASL2309

Credit Units: 05

**Course Objectives:** After completing this course, the student will be able to

- choose individualized test battery for assessing cochlear pathology, retro cochlear pathology, functional hearing loss, CAPD, vestibular dysfunctions, tinnitus and hyperacusis
- independently run the tests and interpret the results to identify the above conditions and also use the information for differential diagnosis
- make adjustments in the test parameters to improve sensitivity and specificity of tests.
- make appropriate diagnosis based on the test results and suggest referrals.

**Course Contents:**

## **Module-I: Introduction to diagnostic audiology**

- a) Characteristics of a diagnostic test, difference between screening and diagnostic test, functions of a diagnostic test in Audiology
- b) Need for test battery approach in auditory diagnosis and integration of results of audiological tests, cross-check principle
- c) Concept of sensitivity, specificity, true positive, true negative, false positive, false negative, hit rate
- d) Definition of behavioural and physiological tests and their characteristics in diagnostic audiology
- e) Theories and physiological bases of recruitment
- f) Theories and physiological bases of adaptation
- g) Clinical indications for cochlear pathology, retro-cochlear pathology, central auditory processing disorders, functional hearing loss, vestibular disorders

## **Module-II: Tests to identify cochlear and retro cochlear pathology**

- a) ABLB, MLB and SISI tests
- b) Behavioural tests of adaptation
- c) Bekesy audiometry
- d) Brief tone audiometry
- e) PIPB function
- f) Glycerol test
- g) Test to identify dead regions of cochlea

## **Module-III: Tests to diagnose functional hearing loss**

- a) Behavioural and clinical indicators of functional hearing loss
- b) Pure tone tests including tone in noise test, Stenger test, BADGE, puretone DAF
- c) Speech tests including Lombard test, Stenger test, lip-reading test, Doerfler-Stewart test, Low level PB word test, Yes-No test, DAF test
- d) Identification of functional hearing loss in children: Swinging story test, Pulse tone methods

## **Module-IV: Assessment of central auditory processing**

- a) Definition, different behavioral processes
- b) Behavioral and clinical indicators of central auditory processing disorders
- c) Bottle neck and subtlety principles and their implications in
- d) Tests to detect central auditory processing disorders
- e) Monaural low redundancy tests - filtered speech tests, time compressed speech test, speech-in-noise test, SSI with ICM, other monaural low redundancy tests.
- f) Dichotic speech tests – Dichotic digit test, Staggered spondaic word test, Dichotic CV test, SSI with CCM, Competing sentence test, other dichotic speech tests.

- g) Binaural interaction tests – RASP, BFT, MLD, other binaural interaction tests
- h) Tests of Temporal processing – pitch pattern test, duration pattern tests, other temporal ordering tests, gap detection test, TMTF
- i) Variables influencing the assessment of central auditory processing: Procedural and subject variables
- j) Test findings of important tests in subjects with central auditory disorders: brainstem lesion, cortical, CAPD in children.

**Module-V: Assessment of persons with vestibular disorder, tinnitus, hyperacusis**

- a) Introduction to structure and function of vestibular system
- b) Vestibular ocular reflex and vestibulo spinal reflex
- c) Overview on other systems involved in balance
- d) Signs and Symptoms of vestibular disorders
- e) Team in the assessment and management of vestibular disorders
- f) Behavioral tests to assess vestibular functioning: Fukuda stepping test, tandem gait test, finger nose pointing, Romberg test, Sharpened Romberg test, Dix-Hallpike test, Log-roll test
- g) Overview of tinnitus and hyperacusis and tests for assessment
- h) Pitch matching, loudness matching, residual inhibition, Feldman masking curves
- i) Johnson Hyperacusis Dynamic Range Quotient

**Practicals**

- a) Administer ABLB, MLB and prepare ladder gram (ABLB to be administered by blocking one ear with impression material)
- b) Administer classical SISI on 3 individuals and note down the scores
- c) Administer tone decay tests (classical and its modifications) and note down the results (at least 3 individuals)
- d) Administer Bekesy audiometry
- e) Administer Brief tone audiometry
- f) Plot PIPB function using standardized lists in any 5 individuals
- g) Administer the tests of functional hearing loss (both tone based and speech based) by asking subject to malingering and having a yardstick of loudness.
- g) Administer CAPD test battery to assess different processes on 3 individuals and note down the scores
- h) Administer Fukuda stepping test, Tandem gait test, Finger nose pointing, Romberg test, Sharpened Romberg test, Dix-Hallpike test, Log-roll test on 5 of the individuals each and note down the observations.
- i) Estimate the pitch and loudness of tinnitus in 2 persons with tinnitus (under supervision). Assess the residual inhibition in them.
- j) Plot Feldman masking curves for a hypothetical case
- k) Administer Johnson Hyperacusis Dynamic Range Quotient on any 2 of the individuals and note down the scores.

**Examination Scheme:**

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

### **Recommended Reading**

- Gelfand, S. A. (2009). *Essentials of Audiology*. Thieme.
- Hall, J. W., & Mueller, H. G. (1996). *Audiologists' Desk Reference: Diagnostic audiology principles, procedures, and protocols*. Cengage Learning.
- Jerger, J. (1993). *Clinical Audiology: The Jerger Perspective*. Singular Publishing Group.
- Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology* (6th revised North American edition). Philadelphia: Lippincott Williams and Wilkins.
- Martin, F. N., & Clark, J. G. (2014). *Introduction to Audiology* (12 edition). Boston: Pearson.
- Roeser, R. J., Valente, M., & Hosford-Dunn, H. (2007). *Audiology: Diagnosis*. Thieme.
- Stach, B. A. (2010). *Clinical audiology: an introduction* (2nd ed). Clifton Park, NY: Delmar Cengage Learning.



# AMPLIFICATION DEVICES

**Course Code: ASL2310**

**Credit Units: 05**

**Course Objectives:** After completing this course, students will be able to

- assess the candidacy for hearing aids and counsel accordingly
- evaluate the listening needs and select the appropriate hearing aid
- independently program digital hearing aids as per the listening needs of the client
- independently assess the benefit from the hearing aid using subjective and objective methods
- make all types of ear molds
- counsel the parents/care givers at all stages

**Course Contents:**

## **Module-I: Types of hearing aids**

- a) Historical development of hearing aids: development of concept of amplification, development of different types of amplification devices
- b) Review of basic elements of hearing aids: Microphone, Amplifier, Receiver/vibrator, Cords, Batteries.
- c) Classification and Types of hearing aids
  - Body level, ear level, in the ear, ITC, invisible in the canal, CIC
  - Binaural, pseudo binaural, monaural
  - Programmable, trimmer digital and digital hearing aids
  - Directional hearing aids, modular hearing aids
  - RIC hearing aids
  - Implantable hearing aids
  - Master hearing aids
  - CROS hearing aids
- d) Group amplification – hard wired, induction loop, FM, infrared
- e) Assistive listening devices – types and selection (Telephones, Television, typing technology)

## **Module-II: Technological aspects in hearing aids**

- a) Routing of signals, head shadow/baffle/diffraction effects
- b) Output limiting and issues related to them: peak clipping, compression
- c) Concept and use of compression in hearing aids: BILL, TILL, PILL, Wide Dynamic Range Compression, Syllabic Compression, Dual Compression
- d) Signal processing in hearing aids – BILL, TILL, PILL
- e) Signal enhancing technology
- f) Noise reduction algorithms
- g) Extended low frequency amplification, frequency lowering technology (transposition, compression)
- h) Recent advances in hearing aids

## **Module-III: Electro-acoustic measurements for hearing aids**

- a) Purpose and Parameters to be considered: OSPL90, SSPL90, HFA SSPL90, Gain, Full on Gain, HFA Full on Gain, Reference test Gain, Basic Frequency Response, Total Harmonic distortion, Intermodulation Distortion, input Output functions, instrumentation, procedure, variables affecting EAM
- b) Electro-acoustic measurements, BIS, IEC and ANSI standards
- c) Environmental tests.
- d) Care, maintenance and troubleshooting of hearing aids
- e) Counselling and orienting the hearing aid user (Client and significant others)

**Module-IV: Selection of hearing aids**

- a) Pre-selection factors; Prescriptive and comparative procedures; Functional gain and insertion gain methods; Use of impedance, OAEs and AEPs audiometry; Hearing aids for conductive hearing loss; Hearing aids for children; Hearing aids for elderly; Selection of non-linear programmable and digital hearing aids
- b) Hearing aid programming
- c) Methods for assessing hearing aid benefit
- d) Real ear insertion measurements for verification of hearing aid benefit: REIG, REUR, REAR, REOR, RESR, REIG, REAG, RECD
- e) Acoustic feedback in hearing aids

**Module-V: Mechano-acoustic couplers (Ear molds)**

- a) Different types of molds
- b) Procedure for hard molds and soft mold
- c) UV curing methods
- d) Special modifications in the ear molds: Vents (diagonal and parallel), deep canal molds, short canal, horns, Libby horn, reverse horn, acoustic modifier
- e) Effects of mechano-acoustic couplers on the hearing aid output

**Practicals**

- a) Listen to the output of different types and classes of hearing aids (monaural, binaural, analog, digital hearing aids), in different settings
- b) Troubleshoot hearing aids: Check the continuity of the receiver cord using multi meter, measure the voltage of different sized batteries using multi meter, Check voltage of batteries different types and sizes
- c) Carry out electroacoustic measurements for the body level and ear level hearing aids
- d) Program the hearing aid for different configuration and degrees of hearing loss (at least 5 different audiograms) using different prescriptive formulae
- e) Program the hearing aid for different listening situations (at least 3 different situations)
- f) Vary the compression settings in a digital hearing aid and note down the differences in the output
- g) Perform real ear insertion measurements using different hearing aids (body level and ear level, hearing aids of different gains)
- h) Compare speech perception through conventional BTE and RIC hearing aids using a rating scale
- i) Observe assistive listening devices such as telephone amplifier, vibro-tactile alarms, note down the candidacy and their utility.
- j) Administer a questionnaire to assess hearing aid benefit on 2 persons using hearing aids.
- k) Carry out a role play activity of counselling a hearing aid user
- l) Ear Molds
  - Take impression for the ear mold using different techniques, different methods and using different materials
  - Make hard mold for any 2 ears
  - Make soft mold for any 2 ears
  - Make vent in hard molds you made

**Examination Scheme:**

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

### **Recommended Reading**

- Dillon. (2012). *Hearing Aids* (2 edition). Thieme Medical and Scientific Publisher.
- Hall, J. W., & Mueller, H. G. (1998). *Audiologists' Desk Reference: Audiologic management, rehabilitation, and terminology*. Singular Publishing Group.
- Kates, J. M. (2008). *Digital Hearing Aids* (1 edition). San Diego: Plural Publishing Inc.
- Metz, M. J. (2014). *Sandlin's Textbook of Hearing Aid Amplification: Technical and Clinical Considerations*. Plural Publishing.
- Mueller, H. G., Hawkins, D. B., & Northern, J. L. (1992). *Probe Microphone Measurements: Hearing Aid Selection and Assessment*. Singular Publishing Group.
- Mueller, H. G., Ricketts, T. A., & Bentler, R. A. (2007). *Modern Hearing Aids: Pre-fitting Testing and Selection Considerations: 1* (1 edition). San Diego, CA: Plural Publishing Inc.
- Sandlin, R. E. (Ed.). (1989). *Handbook of Hearing Aid Amplification: Clinical Considerations and Fitting Practices v. 2*. Boston: Singular Publishing Group.
- Sandlin, R. E. (Ed.). (1993). *Understanding Digitally Programmable Hearing AIDS*. Boston: Allyn & Bacon.
- Tate, M. (2013). *Principles of Hearing Aid Audiology*. Springer.
- Taylor, B., & Mueller, H. G. (2011). *Fitting and Dispensing Hearing Aids* (1 edition). San Diego: Plural Publishing Inc.
- Valente, M. (2002). *Hearing Aids: Standards, Options, and Limitations*. Thieme.

# CLINICALS IN SPEECH LANGUAGE PATHOLOGY-I

Course Code: ASL2311

Credit Units: 07

## General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech –language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/log book based on clinical reports/recordings, etc), and do (perform on patients/ client contacts) the following:

## Know:

1. Procedures to obtain a speech language sample for speech & language assessment from children of different age groups such as, pre schoolers, kindergarten, primary school and older age groups.
2. Methods to examine the structures of the oral cavity/organs of speech.
3. The tools to assess language abilities in children (with hearing impairment, specific language impairment & mixed receptive language disorder).
4. Development of speech sounds in vernacular and linguistic nuances of the language.

## Know-how:

1. To evaluate speech and language components using informal assessment methods.
2. To administer at least two standard tests for childhood language disorders.
3. To administer at least two standard tests of articulation/ speech sounds.
4. To assess speech intelligibility.

## Show:

1. Analysis of language components – Form, content & use – minimum of 2 samples.
2. Analysis of speech sounds at different linguistic levels including phonological processes – minimum of 2 samples.
3. Transcription of speech language samples – minimum of 2 samples.
4. Analyse differences in dialects of the local language.

## Do:

1. Case history - minimum of 5 individuals with speech & language disorders.
2. Oral peripheral examination - minimum of 5 individuals.
3. Language evaluation report – minimum of 5.
4. Speech sound evaluation report – minimum of 5.

## Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

## Examination scheme:

Components	CRW	C/P/A	CT	A	Viva
Weightage (%)	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

# CLINICALS IN AUDIOLOGY-I

Course Code: ASL2312

Credit Units: 07

## General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/log book), and do (perform on patients/ client contacts) the following:

## Know:

1. Methods to calibrate audiometer.
2. Materials commonly employed in speech audiometry.
3. Calculation pure tone average, % of hearing loss, minimum and maximum masking levels.
4. Different types of hearing loss and its common causes

## Know-how:

1. To obtain detailed case history from clients or parents/guardians.
2. To carryout commonly used tuning fork tests.
3. To administer pure tone audiometry including appropriate masking techniques on adults using at least techniques
4. To administer tests to find out speech reception threshold, speech identification scores, most comfortable and uncomfortable levels on adults.

## Show:

1. Plotting of audiograms with different degree and type with appropriate symbols – 2 audiograms per degree and type
2. Detailed case history taken and its analysis
3. Calculation degree, type and percentage of hearing loss on 5 sample conditions

## Do:

1. Case history on at least 5 adults and 3 children with hearing disorders
2. Tuning fork test on at least 2 individuals with conductive and 2 individuals with sensori-neural hearing loss
3. Pure tone audiometry with appropriate masking on 5 individuals with conductive, 5 individuals SN hearing loss and 3 individuals with unilateral/asymmetric hearing loss – 5

## Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

## Examination scheme:

Components	CRW	C/P/A	CT	A	Viva
Weightage (%)	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

# Syllabus - Fourth Semester

## MOTOR SPEECH DISORDERS IN CHILDREN

Course Code: ASL2402

Credit Units: 05

**Course Objectives:** After completing this course, the student will be able to

- describe the characteristics of motor speech disorders in children such as cerebral palsy, childhood apraxia of speech and other childhood dysarthrias
- assess the speech and non-speech aspects associated with the above conditions
- plan and execute therapy strategies for children with motor speech disorders

**Course Contents:**

### **Module-I: Neuro-developmental processes in speech production and motor speech disorders**

- a) Review of neuro-anatomy (cerebral cortex, sub-cortical structures, brainstem, cerebellum, spinal cord & cranial nerves, pyramidal and extra-pyramidal systems)
- b) Sensory-motor integration (spatial temporal planning, motor planning and feedback)
- c) Anatomic development of speech production systems
- d) Development of neural pathways of speech motor control (brain maturation, reflexes, sensory and motor)
- e) Dysarthria in children – cerebral palsy – disorders of tone (spastic, flaccid): definition, etiology, characteristics and associated problems
- f) Dysarthria in children – cerebral palsy – disorders of movement (hyperkinetic, hypokinetic) and disorder of balance (ataxia): definition, etiology, characteristics and associated problems
- g) Dysarthria in children – lower motor neuron and other syndromes with motor speech disorders
- h) Childhood apraxia of speech and nonverbal oral apraxia: definition, characteristics and classification

### **Module-II: Assessment of motor speech disorders in children**

- a) Case history and developmental neurological evaluation – primitive postural and oro-pharyngeal reflexes, cranial nerve examination
- b) Assessment of oral sensory and motor capacity – Oral peripheral mechanism examination, neuromuscular status
- c) Assessment of speech sub-systems – quantitative and qualitative
- d) Assessment of speech intelligibility and comprehensibility
- e) Assessment of associated problem
- f) Speech assessment with specific reference to childhood apraxia of speech – Phonetic and phonemic inventory, phonotactics and syllable sequencing, variability of errors, speech intelligibility, fluency and prosody
- g) Test materials – checklist for childhood apraxia of speech, screening test for developmental apraxia of speech
- h) Protocols for non-verbal and verbal praxis specific to Indian languages
- i) Differential diagnosis- dysarthria and other developmental disorders
- j) Differential diagnosis - childhood apraxia of speech and other developmental disorders

### **Module-III: Management of childhood dysarthria**

- a) Team approach in rehabilitation of motor speech disorders in children
- b) Neuro-developmental therapy
- c) Non speech oral-motor exercises: its application for children with dysarthria

- d) Management of drooling
- e) Behavioral management of respiratory, phonatory, resonatory and articulatory subsystems
- f) Prosthetic appliances in treatment of childhood dysarthria
- g) AAC in management of motor speech disorders- role of devices, AAC team, candidacy and pre-requisites, symbol selection, techniques, assessment for AAC, effective use of AAC
- h) Case studies: Planning intervention for children with dysarthria

#### **Module-IV: Management of childhood apraxia of speech**

- a) Principles of motor learning
- b) Integral stimulation – dynamic temporal cueing
- c) Multisensory and tactile cueing techniques (motor kinesthetic speech training, sensory motor approach, PROMPTS, Touch cue method & speech facilitation)
- d) Gestural cueing techniques (signed target phoneme therapy, adapted cueing techniques, cued speech, visual phonics, & Jordan's gestures)
- e) Miscellaneous techniques (melodic intonation therapy, multiple phonemic approach, & instrumental feedback)
- f) Cognitive/conceptual/ linguistic /phonological remedial approaches - phonotactics
- g) Other approaches: Vowel and diphthong remediation techniques (Northampton (Yale) vowel chart and Alcorn symbols), Nancy Kauffman's speech praxis treatment kit
- h) Use of AAC in childhood apraxia of speech
- i) Evidence-based practice in intervention for childhood apraxia of speech
- j) Case studies: Planning intervention for childhood apraxia of speech

#### **Module-V: Feeding and swallowing disorders in children**

- a) Embryology- periods and structures of development
- b) Anatomical structures of swallowing- upper aero digestive system, anatomic difference between adults and children
- c) Physiology of swallowing- swallow phases, neural control of swallowing, reflexes related to swallowing, suckling and sucking, airway and swallowing
- d) Terms involved in dysphagia and development of feeding skills
- e) Causes of dysphagia in children
- f) Signs and symptoms of dysphagia in children
- g) Assessment – inferences from neural developmental assessment, cranial nerve examination, assessment scales, nutritive and non-nutritive assessment, instrumental assessment (VFS, cervical auscultation), gastrointestinal evaluation
- h) Management: positioning, oral- motor treatment, team approach, non oral feeding, transitional feeding, modifications in feeding
- i) Role of speech-language pathologist in neonatal intensive care with reference to feeding and swallowing

#### **Practicals**

- a) With the help of models, charts and software, identify the motor control centers in the brain.
- b) Perform oro-motor examination in five children and adults and compare
- c) Identify oro-motor reflexes (rooting, suckling, & phase bite) in 5 infants.
- d) Demonstrate normal posture and breathing patterns required for varied speech tasks. Alter the postures and breathing patterns and notice changes in speech patterns.
- e) Assess DDK rate in five typically developing children.
- f) Rate intelligibility of speech in five typically developing children. Discuss factors that influenced speech intelligibility and their ratings.
- g) Observe and record (a) physical status, (b) oral sensory motor abilities and vegetative skills, (c)

respiration, (d) phonation, (e) resonance, (f) articulation and (g) language abilities in five typically developing children. Compare these with observations made from children with motor speech disorders.

- h) Perform oro-motor exercises – isotonic and isometric. Discuss strategies to modify exercises for children.
- i) Identify from video the AAC system such as low technology vs high technology systems and different symbol system, that is, Bliss symbols, IICP symbols and different signing systems – Makaton.
- j) Observe feeding and swallowing skills in different age groups of children: 2 newborns; 2 infants, 2 toddlers, and 2 older children. Identify the differences in feeding methods, food consistencies, texture, quantity, feeding habits, feeding appliances used by these children.

**Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Arvedson, J.C., and Brodsky, L. (2002) (2nd Ed.). Pediatric swallowing and feeding. San Diego, Singular publishing.
- Caruso, F. J. and Strand, E. A. (1999). Clinical Management of Motor Speech Disorders in Children. New York: Thieme.
- Hardy, J. (1983). Cerebral Palsy. Remediation of Communication Disorder Series by F.N. Martin. Englewood Cliffs, Prentice Hall Inc.
- Love, R.J. (2000) (2nd Ed). Childhood Motor Speech Disorders. Allyn & Bacon.
- Love, R.J. and Webb, W.G. (1993). (2nd ed.) Neurology for the Speech-Language Pathologist. Reed Publishing (USA)
- Rosenthal. S., Shipp and Lotze (1995). Dysphagia and the child with developmental disabilities. Singular Publishing Group.
- Velleman, S. L (2003). Resource guide for Childhood Apraxia of Speech. Delmar/Thomson Learning



# CHILD LANGUAGE DISORDERS

Course Code: ASL2406

Credit Units: 05

**Course Objectives:** After completing this course, the student will be able to

- explain the process of acquisition of language and factors that influence its development in children.
- identify and assess language delay and deviance in children.
- select appropriate strategies for intervention.
- counsel and provide guidance to parents/caregivers of children with language disorders.

**Course Contents:**

## **Module-I: Bases of language acquisition, development and disorders**

- a) Theories of language acquisition 1: Biological, Psycholinguistic/syntactic theory
- b) Theories of language acquisition 2: Cognitive, social interaction/pragmatic, information processing, behavioral
- c) Pre-cursors for normal development of language
- d) Development of components of language from birth to two years (pre-linguistic/pre-symbolic to symbolic)
- e) Development of components of language during preschool period
- f) Development of components of language during early school age and beyond
- g) Basic concepts and terminologies of language development in bilingual children – simultaneous versus sequential language acquisition, additive and subtractive bilingualism, process of second language acquisition, variables influencing second language acquisition
- h) Development of language in culturally diverse environments and exceptional circumstances – neglect and abuse, twins, low-socio economic background
- i) Over view of language disorders – definition and classification based on ICD, DSM
- j) Application of ICF in language disorders

## **Module-II: Language disorders – definition, classification, causes, and characteristics**

- a) Intellectual disability: definition, classification, causes and characteristics
- b) Autism spectrum disorders: definition, classification, causes and characteristics
- c) Attention deficit hyperactive disorder: definition, classification, causes and characteristics
- d) Language impairment - mixed receptive and expressive language disorder, specific language impairment: definition, classification, causes and characteristics
- e) Learning disability: definition, classification, causes and characteristics
- f) Acquired childhood aphasia: definition, classification, causes and characteristics
- g) Sensory impairments and language disorders: types, causes and characteristics
- h) Syndromic conditions leading to language difficulties: William syndrome, fragile x syndrome, Down syndrome
- i) Other developmental disabilities: deaf-blind, cerebral palsy and multiple disabilities.

## **Module-III: Assessment of language in children**

- a) Preliminary components of assessment: Case history, screening, evaluation of environmental, linguistic & cultural variables.
- b) Methods to assess children with language disorder: Formal versus informal assessment; types of assessment materials: assessment scales, observational checklists, developmental scales; standardization, reliability, validity, sensitivity and specificity of test materials
- c) Informal assessment - pre-linguistic behavior, play, mother-child interaction
- d) Language sampling: planning and collecting representative sample; strategies to collecting

- language sample, audio-video recording, transcription
- e) Analysis of language sample: Specific to various components of language such as phonology, morphology, syntax, semantics and pragmatics.
- f) Test materials for assessing language skills: Assessment of Language Development (ALD), 3D-Language Assessment Test, Linguistic Profile Test, Com-DEALL checklist, other Indian and global tests
- g) Test materials used for children with developmental delay, intellectual disability: Madras Developmental Program Scale, Bayley's Scale for infant and toddler development
- h) Test materials used for children with autism spectrum disorder: Modified-Checklist for Assessment of Autism in Toddlers, Childhood Autism Rating Scale, Indian Scale for Assessment of Autism
- i) Other test materials used for children with ADHD, ACA, LD (NIMH battery for assessment of Learning Disability)
- j) Documenting assessment results: diagnostic report, summary report and referral report specific to disorder
- k) Differential diagnosis of language disorders in children

#### **Module-IV: Management of language disorders in children - I**

- a) General principles and strategies of intervention in children with language impairment – purpose of intervention, basic approaches to language intervention (developmental or normative approach, functional approach)
- b) Types of service delivery models - Individuals versus group; direct versus tele-rehabilitation; structure of therapy session, setting the environment, furniture, seating arrangements
- c) Reinforcement in language therapy, types and schedules of reinforcement
- d) Choice of language for intervention, incorporating principles of multiculturalism into treatment activities
- e) Choosing and framing goals and Objectives: SMART Objectives
- f) Specific treatment techniques
  - i. Incidental teaching, self-talk, parallel talk, expansion, extension, recasting, joint routines, joint book reading,
  - ii. whole language, modifying linguistic input, communicative temptations
  - iii. drill, modelling
  - iv. Focused stimulation, vertical structuring, milieu teaching, and model
- g) Caregivers and family in intervention: Structured and informal approaches

#### **Module-V: Management of language disorders in children - II**

- a) Team approach to intervention
- b) Augmentative and alternative communication – types (aided and unaided) and application in child language disorders
- c) Specific approaches to management of children with Autism: PECS, Lovaas, TEACCH, Com-DEALL, ABA, Facilitated Communication
- d) Approaches to management of children with LD
- e) Strategies to facilitate language skills in children with disorders such as intellectual disability: Redundancy, chunking, chaining
- f) Use of technology in language intervention
- g) Home plan and counselling for children with language disorders
- h) Documentation specific to the disorder: pre-therapy; lesson plan; SOAP notes
- i) Documentation specific to the disorder: summary report, referral report
- j) Decision making in therapy: transition to next objective, termination of therapy

## Practicals

- a) Record mother-child interaction of one typically developing child in the age range of 0-1, 1-2, 2-4, 4-6 and 6-8 years of age. Compare linguistically the outputs from the mother and the child across the age groups. Make inferences on socio cultural influences in these interactions.
- b) Make a list of loan words in two familiar languages based on interaction with 10 typically developing children in the age range of 2-4, 4-6, 6-8 and 8-10 years. Discuss the influence of bi- or multilingualism on vocabulary.
- c) Record a conversation and narration sample from 3 children who are in preschool kindergarten, and primary school. Perform a language transcription and analyze for form, content and use.
- d) Administer 3D LAT, ALD, LPT, ComDEALL checklist on 2 typically developing children.
- e) Draft a diagnostic report and referral letter for a child with language disorder.
- f) Demonstrate general language stimulation techniques and discuss the clinical application.
- g) Demonstrate specific language stimulation techniques with appropriate materials and discuss its clinical applications.
- h) Draft Subjective Objective Assessment Plan (SOAP) for a pre-recorded sample of a 45 minute session of intervention for a child with language disorder.
- i) Draft a lesson plan for a child with language disorder.
- j) Draft a discharge summary report for a child with language disorder

## Examination Scheme:

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

## Recommended Reading

- Roseberry-McKibbin, C. (2007). Language Disorders in Children: A multicultural and case perspective. Boston: Pearson Education, Inc.
- Paul, R. (2013). Language disorders from infancy through adolescence (4th ed.). St.Louis, MO: Mosby.
- Dwight, D.M. (2006). Here's how to do therapy: Hand-on core skills in speech language pathology. San Diego, CA: Plural Publishing
- Hegde, M.N. (2005). Treatment protocols for language disorders in children – Vol. 1  
2. San Diego: Plural Publishing
- Owens, R.E. (2008). Language development: An introduction (7th ed.). Boston: Pearsons
- Reed, V.A. (2004). An Introduction to children with language disorders (3rd Ed.) New York: Allyn & Bacon
- Rout, N and Kamraj, P (2014). Developing Communication - An Activity Book, A publication by NIEPMED, Chennai. Freely downloadable from <http://niepmd.tn.nic.in/publication.php>. ISBN 978-81-928032-41.

# DIAGNOSTIC AUDIOLOGY: PHYSIOLOGICAL TESTS

Course Code: ASL2407

Credit Units: 05

**Course Objectives: After completing this course, the students will be able to**

- justify the need for using the different physiological tests in the audiological assessment
- independently run the tests and interpret the results to detect the middle ear, cochlear and retro cochlear pathologies and also differentially diagnose
- design tailor-made test protocols in immittance, AEPs and OAEs as per the clinical need
- make appropriate diagnosis based on the test results and suggest referrals.

**Course Contents:**

## **Module-I: Immittance Evaluation**

- a) Clinical significance of physiological tests in audiology
- b) Immittance evaluation: Principle of immittance evaluation: Concept of impedance and admittance, their components,
- c) Tympanometry: definition, measurement procedure, response parameters, their measurement and normative, classification of tympanogram, clinical significance of tympanometry
- d) Eustachian tube functioning tests of tympanometry: basics of pressure equalization function of ET, Valsalva, Toynbee, William's pressure swallow, inflation-deflation test.
- e) Overview on multicomponent and multi-frequency tympanometry
- f) Overview on wide band reflectance and wide band tympanometry
- g) Reflexometry: definition, acoustic reflex pathway, measurement procedure, clinical applications of acoustic reflexes, special tests

## **Module-II: Auditory evoked potentials (AEPs): Auditory brainstem response (ABR)**

- a) Introduction and classification of AEPs
- b) Instrumentation
- c) Principles of AEP recording techniques:
- d) Auditory brainstem response generators
- e) Protocol and procedure of recording auditory brainstem response
- f) Factors affecting auditory brainstem responses
- g) Clinical applications of ABR
- h) ABR in the paediatric population
- i) Role of ABR in infant hearing screening

## **Module-III: Overview of other AEPs**

- a) ECoChG
- b) Auditory Middle Latency Responses (AMLR) and their clinical applications
- c) Auditory Long Latency Responses (Obligatory responses) and their clinical applications
- d) Other long latency potentials such as P300, MMN, P600, N400, T-complex, CNV) and their clinical applications
- e) ASSR: Instrumentation, recording and clinical applications
- f) Brainstem responses to speech and other complex signals

## **Module-IV: Otoacoustic emissions**

- Introduction to otoacoustic emissions
- Origin and classification of OAEs
- Instrumentation
- Procedure of OAE measurement: SOAE, TEOAEs, and DPOAEs

- Interpretation of results: SOAE, TEOAEs, and DPOAEs
- Clinical applications of OAEs: SOAE, TEOAEs, and DPOAEs
- Contralateral suppression of OAEs and its clinical implications

**Module-V: Physiological tests for assessment of vestibular system**

- Electronystagmography: procedure, interpretation, clinical applications
- Videonystagmography, videoocculograph
- Vestibular Evoked Myogenic Potentials
- Overview of Rotatory chair test, video Head Impulse Test,
- Overview of Dynamic Posturography

**Practicals**

- Measure admittance in the calibration cavities of various volumes and note down the observations
- Calculate Equivalent ear canal volume by measuring static admittance in an uncompensated tympanogram (10 ears)
- Do tympanogram in the manual mode and measure peak pressure, peak admittance and ear canal volume manually using cursor (10 ears).
- Measure gradient of the tympanogram (10 ears)
- Administer Valsalva and Toynbee and William’s pressure swallow test(5 ears)
- Record acoustic reflex thresholds in the ipsi and contra modes, (10 ears)
- Plot Jerger box pattern for various hypothetical conditions that affect acoustic reflexes and interpret the pattern and the corresponding condition.
- Carry out Acoustic reflex decay test and quantify the decay manually using cursor (5 individuals).
- Trace threshold of ABR (in 5 dB nHL steps near the threshold) for clicks and tone bursts of different frequencies (2 persons) and draw latency intensity function.
- Record ABR using single versus dual channels and, note down the differences
- Record ABR at different repetition rates in 10/sec step beginning with 10.1/11.1 per second. Latency-repetition rate function needs to be drawn.
- Record with each of three transducers (HP, insert phones and bone vibrator) and polarities and draw a comparative table of the same. Students should also record with different transducers without changing in the protocol in the instrument and calculate the correction factor required.
- Record ASSR for stimuli of different frequencies and estimate the thresholds
- Record TEOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies. Note down the stimulus stability and the overall SNR (10 ears).
- Record DPOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies (10 ears)

**Examination Scheme:**

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Hall, J. W., & Mueller, H. G. (1996). Audiologists’ Desk Reference: Diagnostic audiology principles, procedures, and protocols. Cengage Learning.
- Hood, L. J. (1998). Clinical Applications of the Auditory Brainstem Response. Singular Publishing Group.
- Hunter, L., & Shahnaz, N. (2013). Acoustic Immittance Measures: Basic and Advanced Practice (1

- edition). San Diego, CA: Plural Publishing.
- Jacobson, G. P., & Shepard, N. T. (2007). Balance Function Assessment and Management (1 edition). San Diego, CA: Plural Publishing Inc.
  - Jacobson, J. T. (1985). The Auditory brainstem response. College-Hill Press.
  - Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). Handbook of
  - Clinical Audiology (6th revised North American ed edition). Philadelphia: Lippincott Williams and Wilkins.
  - McCaslin, D. L. (2012). Electronystamography/Videonystagmography (1 edition). San Diego: Plural Publishing.
  - Musiek, F. E., Baran, J. A., & Pinheiro, M. L. (1993). Neuroaudiology: Case Studies (1 edition). San Diego, Calif: Singular.
  - Robinette, M. S., & Glatke, T. J. (Eds.). (2007). Otoacoustic Emissions: Clinical Applications (3rd edition). New York: Thieme.

# IMPLANTABLE HEARING DEVICES

**Course Code: ASL2408**

**Credit Units: 05**

**Course Objectives:** After completing this course, the students will be able to

- assess candidacy for bone anchored hearing devices, middle ear implants, cochlear implants, and ABI
- select the appropriate device depending on the audiological and non-audiological findings
- handle post-implantation audiological management
- assess the benefit derived from implantation, and
- counsel the parents/care givers during different stages of implantation

**Course Contents:**

## **Module-I: Implantable hearing devices – basics**

- a) Need for implantable hearing devices
- b) History of implantable hearing devices (bone anchored hearing devices, middle ear implants, cochlear implants, auditory brainstem implants and midbrain implants)
- c) Candidacy for implantable hearing devices
- d) Team involved in implantable hearing devices
- e) Pre-implant counseling, Informed consent

## **Module-II: Bone anchored hearing devices and middle ear implants**

- a) Types, components
- b) Surgical approaches, risks, complications
- c) Audiological evaluations for candidacy, contraindications
- d) Assessment of benefits

## **Module-III: Cochlear implant and brain stem implants – basics**

- a) Terminology, types, components and features
- b) Bilateral, bimodal and hybrid cochlear implants
- c) Factors related to selection of the device, funding sources
- d) Surgical approaches, risks, complications
- e) Audiological and non-audiological candidacy criteria, contraindications

## **Module-IV: Cochlear implants and brainstem implants**

- a) Signal coding strategies, classification, types
- b) Intraoperative monitoring by audiologists
- c) Objective measures: ESRT, ECAP, prom stim, EABR, aided cortical potentials
- d) Post implant Mapping: schedule, pre-requisites, switch-on, mapping parameters, impedance, compliance, role of objective and subjective measures in mapping,
- e) post mapping audiological evaluation
- f) Assessment of benefits
- g) Optimization of hearing aid on contralateral ear

## **Module-V: Implantable hearing devices - Counselling and troubleshooting; Rehabilitation**

- a) Post implant Counselling on care and maintenance and trouble shooting of the device
- b) Overview of post implant rehabilitation including AVT
- c) Factors affecting outcome of implantable devices in adults and children

### Practicals

- a) Watch videos of BAHA, middle ear implant, cochlear implant
- b) Create hypothetical cases (at least 5 different cases) who are candidates for cochlear implantation. Make protocol for recording an EABR
- c) List down the technological differences across different models of cochlear implants from different companies, their cost
- d) Observation of mapping
- e) Watching of videos on AVT
- f) Watch video on cochlear implant surgery

### Examination Scheme:

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

### Recommended Reading

- Clark, G., Cowan, R. S. C., & Dowell, R. C. (1997). Cochlear Implantation for Infants and Children: Advances. Singular Publishing Group.
- Cooper, H., & Craddock, L. (2006). Cochlear Implants: A Practical Guide. Wiley.
- Dutt, S. N. (2002). The Birmingham Bone Anchored Hearing Aid Programme: Some Audiological and Quality of Life Outcomes. Den Haag: Print Partners Ipskamp.
- Eisenberg, L. S. (2009). Clinical Management of Children with Cochlear Implants. Plural Publishing.
- Gifford, R. H. (2013). Cochlear Implant Patient Assessment: Evaluation of Candidacy, Performance, and Outcomes. Plural Publishing.
- Hagr, A. (2007). BAHA: Bone-Anchored Hearing Aid. International Journal of Health Sciences, 1(2), 265–276.
- Kim C. S., Chang S. O., & Lim D. (Eds.). (1999). Updates in Cochlear Implantation :The 2nd Congress of Asia Pacific Symposium on Cochlear Implant and Related Sciences, Seoul, April 1999 (Vol. 57). Seoul: KARGER.
- Kompis, M., & Caversaccio, M.-D. (2011). Implantable Bone Conduction Hearing Aids. Karger Medical and Scientific Publishers.
- Mankekar, G. (2014). Implantable Hearing Devices other than Cochlear Implants. Springer India.
- Møller A.R. (2006). Cochlear and Brainstem Implants (Vol. 64).
- Niparko, J. K. (2009). Cochlear Implants: Principles & Practices. Lippincott Williams & Wilkins.
- Ruckenstein, M.J. (Ed.). (2012). Cochlear Implants and Other Implantable Hearing Devices. Plural.
- Suzuki J.L. (1988). Middle Ear Implant: Implantable Hearing Aids (Vol. 4). KARGER.
- Thoutenhoofd, E. (2005). Paediatric cochlear implantation: evaluating outcomes. Whurr.
- Valente, M. (2002). Strategies for selecting and verifying hearing aid fittings. 2nd Edn. Thieme.



## CLINICALS IN SPEECH-LANGUAGE PATHOLOGY-II

Course Code: ASL2409

Credit Units: 07

### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech –language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/log book based on clinical reports/recordings, etc), and do (perform on patients/ client contacts) the following:

### Know:

1. Speech & language stimulation techniques.
2. Different samples /procedures required to analyse voice production mechanism. (acoustic/ aerodynamic methods / visual examination of larynx/ self evaluation)
3. Different samples /procedures required to analyse speech production mechanism in children with motor speech disorders.

### Know-how:

1. To administer at least two more (in addition to earlier semester) standard tests for childhood language disorders.
2. To administer at least two more (in addition to earlier semester) standard tests of articulation/ speech sounds.
3. To set goals for therapy (including AAC) based on assessment/test results for children with language and speech sound disorders.
4. To record a voice sample for acoustic and perceptual analysis.
5. To assess parameters of voice and breathing for speech.
6. Assessment protocol for children with motor speech disorders including reflex profile and swallow skills.
7. Counselling for children with speech-language disorders.

### Show:

1. Acoustic analysis of voice – minimum of 2 individuals with voice disorders.
2. Simple aerodynamic analysis - minimum of 2 individuals with voice disorders.
3. Self evaluation of voice – minimum of 2 individuals with voice disorders.
4. Informal assessment of swallowing – minimum of 2 children.
5. Assessment of reflexes and pre linguistic skills - minimum of 2 children.
6. Pre –therapy assessment and lesson plan for children with language and speech sound disorders - minimum of 2 children each.

### Do:

1. Case history - minimum of 2 individuals with voice disorders.
2. Case history - minimum of 2 children with motor speech disorders
3. Oral peripheral examination- minimum of 5 children
4. Apply speech language stimulation/therapy techniques on 5 children with language disorders (with hearing impairment, specific language impairment & mixed receptive language disorder)/speech sound disorders – minimum of 5 sessions of therapy for each child.
5. Exit interview and counselling - minimum of 2 individuals with speech language disorders.

**Evaluation:**

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

**Examination scheme:**

<b>Components</b>	<b>CRW</b>	<b>C/P/A</b>	<b>CT</b>	<b>A</b>	<b>Viva</b>
<b>Weightage (%)</b>	15	15	15	5	<b>50</b>

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

## CLINICALS IN AUDIOLOGY-II

**Course Code: ASL2410**

**Credit Units: 07**

**General considerations:**

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/log book), and do (perform on patients/ client contacts) the following:

**Know:**

- Indications to administer special tests
- Procedures to assess the listening needs
- National and international standards regarding electroacoustic characteristics of hearing aids

**Know-how:**

- To administer at least 1 test for adaptation, recruitment and functional hearing loss.
- Counsel hearing aid user regarding the use and maintenance hearing aids
- To troubleshoot common problems with the hearing aids
- To select test battery for detection of central auditory processing disorders.
- Select different types of ear moulds depending on type of hearing aid, client, degree, type and configuration of hearing loss

**Show:**

- Electroacoustic measurement as per BIS standard on at least 2 hearing aids
- How to process 2 hard and 2 soft moulds
- How to preselect hearing aid depending on listening needs and audiological findings on at least 5 clinical situations (case files)
- How select test battery depending on case history and basic audiological information – 3 situations

**Do:**

- Tone decay test – 2 individuals with sensori-neural hearing loss
- Strenger test – 2 individuals with unilateral/asymmetrical hearing loss
- Dichotic CV/digit, Gap detection test – 2 individuals with learning difficulty or problem in hearing in noise
- Hearing aid fitment for at least 5 individuals with mild to moderate and 3 individuals with mod-severe to profound
- Hearing aid selection with real ear measurement system on 3 individuals with hearing impairment

**Evaluation:**

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

**Examination scheme:**

Components	CRW	C/P/A	CT	A	Viva
<b>Weightage (%)</b>	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

# Syllabus - Fifth Semester

## PEDIATRIC AUDIOLOGY

**Course Code: ASL2508**

**Credit Units: 05**

**Course Objectives:** After completing this course, the student will be able to

- describe auditory development
- list etiologies and relate them to different types of auditory disorders that may arise
- explain different hearing screening/identification procedures and their application
- elaborate on different aspects of paediatric behavioral and physiological / electrophysiological evaluation

**Course Contents:**

### **Module-I: Auditory development**

- a) Review of Embryology of the ear
- b) Development of auditory system from periphery to cortex
- c) Neuroplasticity
- d) Prenatal hearing
- e) Normal auditory development from 0-2 years
- f) Infant speech perception
- g) Incidence and prevalence of auditory disorders in children

### **Module-II: Auditory disorders**

- a) Congenital and acquired hearing loss in children
- b) Permanent minimal and mild bilateral hearing loss
- c) Impact on auditory skills, speech-language, educational and socio-emotional abilities
- d) Moderate to profound sensorineural hearing loss
- e) Unilateral hearing loss
- f) Auditory Neuropathy Spectrum Disorders
- g) Central auditory processing disorders
- h) Pseudohypacusis
- i) Auditory disorders in special population and multiple handicap

### **Module-III: Early identification of hearing loss**

- a) Principles of early hearing detection and intervention programs
- b) Principles and history of hearing screening
- c) Joint Committee on Infant Hearing position statement ( 2000, 2007,2013)
- d) High risk register/ checklists for screening
- e) Sensitivity and specificity of screening tests
- f) Hearing screening in infants and toddlers: Indian and Global context
- g) Hearing screening in preschool children: Indian and Global context
- h) Hearing screening in school-age children ( including screening for CAPD): Indian and Global context

#### **Module-IV: Paediatric assessment I**

- a) Behavioral observation audiometry
- b) Conditioned orientation reflex audiometry
- c) Visual reinforcement audiometry, TROCA, play audiometry
- d) Pure tone audiometry in children: Test stimuli, response requirement and reinforcement
- e) Speech audiometry (SRT, SDT); Speech recognition and speech perception tests developed in India)
- f) Bone conduction speech audiometry
- g) Immittance evaluation in paediatric population
- h) Central auditory processing disorders assessment

#### **Module-V: Paediatric assessment II**

- a) Recording and interpretation of OAE in paediatric population
- b) Factors affecting OAE in paediatric population
- c) Recording and interpretation of click evoked and tone burst evoked ABR in paediatric population
- d) Factors affecting ABR in paediatric population
- e) Recording ASSR in paediatric population
- f) Recording AMLR, ALLR in paediatric population
- g) Assessment of hearing loss in special population
- h) Diagnostic test battery for different age groups
- i) Diagnosis and differential diagnosis

#### **Practicals**

- a) Observe a child with normal hearing (0-2 years) in natural settings. Write a report on his/her responses to sound.
- b) Observe a child with hearing impairment (0-2 years) in natural settings. Write a report on his/her responses to sound with and without his amplification device
- c) Administer HRR on at least 3 newborns and interpret responses
- d) Based on the case history, reflect on the possible etiology, type and degree of hearing loss the child may have.
- e) Compare ABR wave forms in children of varying ages from birth to 24 months.
- f) Observe live or video of BOA/VRA of a child with normal hearing and hearing loss and write a report on the instrumentation, instructions, stimuli used, procedure and interpretation.
- g) Observe OAE in a child with normal hearing and a child with hearing loss. Write a report on the instrumentation, protocol used and interpretation
- h) Observe ABR in a child with normal hearing and a child with hearing loss. Write down a report on the instrumentation, protocol used and interpretation
- i) Observe immittance evaluation in a child with normal hearing and a child with hearing loss. Write a report on the instrumentation, protocol used and interpretation
- j) Using role play demonstrate how the results of audiological assessment are explained to caregiver

in children with the following conditions

- Child referred in screening and has high risk factors in his history
- Child with chronic middle ear disease
- Child with CAPD
- Child with severe bilateral hearing impairment

**Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

**Recommended Reading**

- Finitzo, T., Sininger, Y., Brookhouser, P., & Village, E. G. (2007). Year 2007 position statement: Principles and guidelines for early hearing detection and intervention programs. *Paediatrics*, 120(4), 898–921. <http://doi.org/10.1542/peds.2007-2333>
- Madell, J.R., & Flexer, C. (2008). *Paediatric Audiology: Diagnosis, Technology, and Management*. Ney York NY: Thieme Medical Publishers.
- Northern, J.L. and Downs, M.P. (2014). *Hearing in Children*. 6th Ed. San Diego: Plural Publishing.
- Seewald, R., and Thorpe, A.M. (2011). *Comprehensive Handbook of Paediatric Audiology*, San Diego: Plural Publishing. ( core text book )
- [www.jcih.org](http://www.jcih.org)



## CLINICALS IN SPEECH LANGUAGE PATHOLOGY-III

Course Code: ASL2510

Credit Units: 07

### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech –language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/log book based on clinical reports/recordings, etc.), and do (perform on patients/ client contacts) the following:

### Know:

1. Procedures to assess speech fluency and its parameters using standardized tests for children and adults.
2. Differential diagnosis of motor speech disorders in children.
3. Procedures to assess individuals with cleft lip and palate, and other oro-facial structural abnormalities.
4. Procedures to assess laryngectomee and provide management options.

### Know-how:

1. To administer at least two more (in addition to earlier semesters) standard tests for childhood language disorders.
2. To record a speech sample for analysis of fluency skills (including blocks & its frequency, rate of speech, prosody, etc.).
3. To assess posture and breathing for speech in children with motor speech disorders.
4. To consult with inter-disciplinary medical/rehabilitation team and counsel the individual/family regarding management options and prognosis.

### Show:

1. Rating of cleft, speech intelligibility and nasality – minimum of 2 individuals with cleft lip and palate.
2. Language assessment - minimum of 2 individuals with cleft lip and palate.
3. Transcription of speech sample and assessment of percentage dis/dysfluency– minimum of 2 individuals with stuttering.
4. Assessment of rate of speech on various speech tasks – at least on 2 children & adults.

### Do:

1. Voice assessment report - minimum of 2 individuals with voice disorders.
2. Fluency assessment report - minimum of 2 individuals with fluency disorders.
3. Oral peripheral examination on minimum of 2 individuals with cleft lip and palate.
4. Apply speech language stimulation/therapy techniques on 5 children with language disorders/speech sound disorders/ motor speech disorders – minimum 5 sessions of therapy for each child.

### Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work.



**Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

## CLINICALS IN AUDIOLOGY-III

Course Code: ASL2511

Credit Units: 07

### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/log book), and do (perform on patients/ client contacts) the following:

### Know:

- Different protocols in tympanometry and reflexometry.
- Different protocols used in auditory brainstem responses
- Protocols for screening and diagnostic otoacoustic emissions
- Tests to assess vestibular system
- Different indications for selecting implantable hearing devices
- Various speech stimulation and auditory training techniques

### Know-how:

- To administer auditory brainstem responses for the purpose of threshold estimation and site of lesion testing
- To administer high frequency tympanometry and calculate resonance frequency
- To administer high risk register
- To modify the given environment to suit the needs of hearing impairment

### Show:

- Analysis of ABR waveforms – threshold estimation 5 and site of lesion 5
- Analysis of immittance audiometry and relating to other tests – 5 individuals with conductive and 5 individuals with sensori-neural hearing loss
- How to formulate select appropriate auditory training technique based on audiological evaluation

### Do:

- Threshold estimation on 5 infants (< 2 years)
- TEOAE and DPOAE on 5 infants (<2 years)
- BOA on 5 infants (<2 years)
- VRA on 2 infants (6 month – 3 year)
- Conditioned play audiometry – 3 children (3-6 years)
- Hearing aid fitment on 1 infant (< 3 years) 2 children (3-6 years)
- Listening age of 3 children with hearing impairment
- Appropriate auditory training on 5 children with hearing loss

### Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

**Examination Scheme:**

<b>Components</b>	<b>CRW</b>	<b>PTB</b>	<b>CT</b>	<b>A</b>	<b>EE</b>
<b>Weightage (%)</b>	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

# Syllabus - Sixth Semester

## MOTOR SPEECH DISORDERS IN ADULTS

Course Code: ASL2606

Credit Units: 05

**Course Objectives:** After completing the course, the student will be able to

- understand the characteristics of acquired motor speech disorders in adults
- evaluate and diagnose speech characteristics in acquired motor speech disorders
- learn about the techniques for the management of speech and related errors in acquired motor speech disorders

**Course Contents:**

### Module-I: Causes & Characteristics of dysarthria

- a) Definition, etiology and classification of acquired dysarthria
- b) General, speech and feeding related characteristics of acquired dysarthria with and without genetic underpinnings:
- c) Vascular lesions: dysarthria following stroke/CVA, cranial and peripheral nerve palsies
- d) Infectious condition of the nervous system: dysarthria following meningitis, encephalitis, polyneuritis, poliomyelitis, neurosyphilis.
- e) Traumatic lesions: Dysarthria following TBI.
- f) Toxic conditions of the nervous system: Dysarthria following exogenic and endogenic toxic conditions of the nervous system.
- g) Anoxia of the nervous system: Dysarthria following anoxic conditions
- h) Metabolic disorders affecting nervous system: Dysarthria following metabolic conditions that affect the nervous system, Wilson's disease etc.
- i) Idiopathic causes: Dysarthria following idiopathic causes
- j) Neoplastic lesions of nervous system: Dysarthria following neoplastic lesions in the nervous system
- k) Demyelinating and degenerative conditions: Huntington's Chorea, Parkinson's, Multiple Sclerosis, Motor Neuron Diseases

### Module-II: Assessment and diagnosis of dysarthria

- a) Subjective assessment of dysarthria:
  - Assessment of respiratory, phonatory, resonatory, articulatory errors
  - Assessment of prosodic features
  - Assessment of speech intelligibility
  - Scales, protocols and tests used for subjective assessment of dysarthria
- b) Instrumental analysis of speech in dysarthria: Acoustic, kinematic and physiological
- c) Advantages and disadvantages of subjective and instrumental procedures in the assessment of dysarthria in adults
  - Differential diagnosis of acquired motor speech disorders in adults:
  - Dysarthria and verbal apraxia
  - Dysarthria and functional articulation disorders
  - Dysarthria and aphasia
  - Apraxia of speech and aphasia
  - Dysarthria from other allied disorders such as agnosia, alexia, agraphia etc.
  - Apraxia from other allied disorders such as agnosia, alexia, agraphia etc.
  - Assessment of feeding, swallowing and related issues in persons with dysarthria

### Module-III: Management of dysarthria

- a) Management of acquired dysarthria
- b) General principles in the management of dysarthria
- c) Influence of medical, prosthetic and surgical procedures on the speech in persons with acquired dysarthria.
- d) Facilitative approach: vegetative, sensorimotor and reflex based.
- e) Systems approach: correction of respiratory, phonatory, resonatory, articulatory and prosodic errors.
- f) Strategies to improve speech intelligibility and speech enhancement techniques
- g) Strategies to improve feeding, swallowing behavior in persons with acquired dysarthria

### Module-IV: Assessment and management of apraxia in adults

- a) Definition, etiology and classification of acquired apraxia
- b) Characteristics of nonverbal apraxia's in adults
- c) Characteristics of verbal apraxia's in adults
- d) Subjective assessment strategies: standard tests and scales, protocols and behavioral profiles
- e) Instrumental analysis of the speech of apraxia in adults: Acoustic, Kinematic and Physiological
- f) Management Approaches for verbal & nonverbal apraxia: principles and strategies

### Module-V: Management related issues in motor speech disorders

- a) Team involved in the management of persons with acquired dysarthria and apraxia
- b) Issues related to maintenance and generalization of speech in dysarthria and apraxia
- c) Counselling and guidance for persons with acquired dysarthria and apraxia
- d) Augmentative and alternative strategies for persons with acquired dysarthria and apraxia

### Practicals

- a) Identify the cranial nerves and mention its origin and insertion from a picture/ model. Demonstrate methods to assess the cranial nerves.
- b) Assess the respiratory system using speech and non-speech tasks in 10 healthy adults.
- c) Assess the phonatory system using subjective and acoustic analysis in 10 healthy adults.
- d) Looking at a video identify the clinical signs and symptoms of different neurological conditions resulting in Dysarthria.
- e) Record the speech sample of 5 normal adults and compare with the audio sample of individuals with Dysarthria.
- f) Administer Duffy's intelligibility rating scale on 5 healthy adults.
- g) Administer Frenchay's Dysarthria Assessment on 5 healthy adults.
- h) Demonstrate activities to improve the functions of speech subsystem.
- i) Identify the signs of UMN and LMN based on a video.
- j) Prepare a low tech AAC for functional communication for an individual with apraxia.

### Examination Scheme:

Components	CRW	PTB	CT	A	EE
Weightage (%)	5	5	15	5	70

CRW- Clinical record writing, PTB- Proficiency in using test batteries, CT- Class test, A- Attendance, EE- End semester examination

### **Recommended Reading**

- Brookshire, R. H. (2007). *Introduction to Neurogenic Communication Disorders*. University of Virginia, Mosby.
- Duffy, J. R. (2013). *Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed.)*. University of Michigan, Elsevier Mosby.
- Dworkin, P. J. (1991). *Motor Speech Disorders: A Treatment Guide*. St. Louis: Mosby.
- Ferrand, C. T., & Bloom, R. L. (1997). *Introduction to Organic and Neurogenic Disorders of Communication: Current Scope of Practice*. US, Allyn & Bacon.
- Goldenberg, G. (2013). *Apraxia: The Cognitive Side of Motor Control*. Oxford University Press, UK.
- Lebrun, Y. (1997). *From the Brain to the Mouth: Acquired Dysarthria and Dysfluency in Adults*. Netherlands, Kluwer Academic Publishers.
- Murdoch, B. E. (2010). *Acquired Speech and Language Disorders: A Neuroanatomical and Functional Neurological Approach (2nd Ed.)*. New Delhi, India: John Wiley & Sons.
- Papathanasiou, I. (2000) (Eds.). *Acquired Neurogenic Communication Disorders – A Clinical Perspective, Chapters 5, 6 & 7*. London, Whurr Publishers.
- Yorkston, K. M., Beukelman, D. R., Strand, E. A., & Hakel, M. (2010). *Management of Motor Speech Disorders in Children and Adults (3rd Ed.)*. Austin, Texas; Pro-Ed Inc.

# CLINICALS IN SPEECH-LANGUAGE PATHOLOGY-IV

Course Code: ASL2610

Credit Units: 07

## General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech–language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/log book based on clinical reports/recordings, etc.), and do (perform on patients/ client contacts) the following:

## Know:

1. Procedures to assess motor speech disorders in adults.
2. Differential diagnosis of motor speech disorders in adults.
3. Procedures to assess individuals with adult language disorders, and other related abnormalities.

## Know-how:

1. To administer at least two standard tests for adult language disorders.
2. To administer at least two standard tests/protocols for motor speech disorders in adults.
3. To record a sample for analysis of language and speech skills in adults with neuro-communication disorders.
4. To assess posture, breathing, speech and swallowing in adults with motor speech disorders.
5. To consult with inter-disciplinary medical/rehabilitation team and counsel the individual/family regarding management options and prognosis.

## Show:

1. Language assessment - minimum of 2 individuals after stroke.
2. Associated problems in individuals after stroke and its evaluation.
3. Dysphagia assessment – minimum of 2 children & adults.
4. Goals and activities for therapy (including AAC) based on assessment/test results for adults with neuro-communication disorders.

## Do:

1. Voice therapy - Minimum of 2 individuals with voice disorders.
2. Fluency therapy - Minimum of 2 individuals with fluency disorders.
3. Bed side evaluation of individuals with neuro-communication disorders – Minimum of 2 individuals.
4. Apply speech language stimulation/therapy techniques on 5 children with language disorders/speech sound disorders/ motor speech disorders – minimum 5 sessions of therapy for each child.

## Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

## Examination scheme:

Components	CRW	C/P/A	CT	A	Viva
Weightage (%)	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External

# CLINICALS IN AUDIOLOGY-IV

Course Code: ASL2611

Credit Units: 07

## General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/log book), and do (perform on patients/ client contacts) the following:

## Know:

1. National and international standards related to noise exposure.
2. Recommend appropriate treatment options such as speech reading, AVT, combined approaches etc.

## Know-how:

1. To carryout noise survey in Industry and community
2. To carryout mapping of cochlear implant in infants and children using both objective and subjective procedures
3. To trouble shoot cochlear implant

## Show:

1. Analysis of objective responses like compound action potential, stapedial reflexes on at least 3 samples
2. Comprehensive hearing conservation program for at least 1 situation

## Do:

1. AVT on at least 1 child with hearing impairment
2. Trouble shooting and fine tuning of hearing aids on at least 5 geriatric clients
3. At least one activity for different stages involved in auditory training

## Evaluation:

- Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.
- External evaluation: Spot test, OSCE, Record, Viva-voce, case work

## Examination scheme:

Components	CRW	C/P/A	CT	A	Viva
Weightage (%)	15	15	15	5	50

CRW- Clinical record writing, C/P/A- Case discussion/presentation/analysis, CT- Class test, A- Attendance, Viva- Internal/External



# Syllabus - Seventh Semester

## CLINICALS IN SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY-I

Course Code: ASL2701

Credit Units: 24

### CLINICALS IN SPEECH LANGUAGE PATHOLOGY

**General:** Clinical internship aims to provide clinical exposure and experience in different set ups. The students would not only carry out greater quantum of work, but also work varied clinical populations and in different contexts. Internship will provide greater opportunity for the students to liaise with professionals from allied fields. The intern is expected to demonstrate competence and independence in carrying out the following, among others:

- 1) Diagnosis and management of speech, language, and swallowing disorders across life span.
- 2) Report evaluation findings, counsel and make appropriate referrals.
- 3) Plan and execute intervention and rehabilitation programs for persons with speech language, communication, and swallowing disorders
- 4) Develop and maintain records related to persons with speech-language, communication, and swallowing disorders

### CLINICALS IN AUDIOLOGY

**General:** Clinical internship aims to provide clinical exposure and experience in different set ups. The students would not only carry out greater quantum of work, but also work varied clinical populations and in different contexts. Internship will provide greater opportunity for the students to liaise with professionals from allied fields. The intern is expected to demonstrate competence and independence in carrying out the following, among others:

- 1) Diagnosis and management of hearing disorders across life span.
- 2) Report evaluation findings, counsel and make appropriate referrals.
- 3) Plan and execute intervention and rehabilitation programs for persons with hearing disorders
- 4) Develop and maintain records related to persons with hearing disorders
- 5) Engage in community related services such as camps, awareness programs specifically, and community based rehabilitation activities, in general.

**Examination Scheme:** Based on performance in clinical practicum.

Components	DR	LP/TP	AT	CL
Weightage (%)	30	30	20	20

DR-Daily Report, LP/TP-Lesson Plan/Therapy Plan, AT-Attendance, CL-Case Load

## Syllabus - Eighth Semester

### CLINICALS IN SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY-II

Course Code: ASL2801

Credit Units: 24

#### CLINICALS IN SPEECH LANGUAGE PATHOLOGY

**General:** Clinical internship aims to provide clinical exposure and experience in different set ups. The students would not only carry out greater quantum of work, but also work varied clinical populations and in different contexts. Internship will provide greater opportunity for the students to liaise with professionals from allied fields. The intern is expected to demonstrate competence and independence in carrying out the following, among others:

- 1) Engage in community related services such as camps, awareness programs specifically, and community based rehabilitation activities, in general.
- 2) Make appropriate referrals and liaise with professionals from related fields.
- 3) Gain experience in different set ups and be able to establish speech centres in different set-ups
- 4) Demonstrate that the objectives of the B.ASLP program have been achieved.
- 5) Advise on the welfare measures available for their clinical clientele and their families.
- 6) Advise and fit appropriate aids and devices for their clinical population.

#### CLINICALS IN AUDIOLOGY

- 1) Make appropriate referrals and liaise with professionals from related fields.
- 2) Gain experience in different set ups and be able to establish hearing centres in different set-ups
- 3) Demonstrate that the objectives of the B.ASLP program have been achieved.
- 4) Advise on the welfare measures available for their clinical clientele and their families.
- 5) Advise and fit appropriate aids and devices for their clinical population.

**Examination Scheme:** Based on performance in clinical practicum.

Components	DR	LP/TP	AT	CL
Weightage (%)	30	30	20	20

DR-Daily Report, LP/TP-Lesson Plan/Therapy Plan, AT-Attendance, CL-Case Load