SEMESTER I

B 1.1 INTRODUCTION TO HUMAN COMMUNICATION

(Total = 64 hrs)

Unit 1 (12 hrs)

1. History and development of the profession of Speech-language pathology (SLP) specifically in India
2. Major work activities of the SLP
3. Various settings of service delivery
4. Other professions concerned with communication disorders
5. Human communication:
   Definition and components
   Interdependency & interrelation between communication, hearing, speech, and language
   Function of communication, speech and language
   Modes of communication (Verbal & Non-verbal)

   Characteristics of good speech
6. Interactive bases of human communication
   - genetic bases
   - psychological & cognitive bases
   - social bases
7. Speech as an overlaid function
8. Pre-requisites and factors affecting language and speech development

Unit 2 (12 hrs)

Theories and models of language Acquisition – Behavioral, Nativist, Cognitive, Linguistic, Pragmatic, Biological and Information processing model

Bilingualism / multilingualism in children; Bilingual Language learning contexts home and school situations, compound / coordinate context and others.

Unit 3 (14 hrs)

Mechanism of speech and language production- I

• Anatomy and physiology of respiratory system: Detailed study of trachea, larynx, oropharynx and nasopharynx.
• Respiration for life and speech
• Physiology: External and internal respiration. Mechanism of respiration-internal and external influence, nervous control, Lung volumes (vital capacity-tidal volume. residual air, artificial respiration.(in brief)
• Composition of gases. Exchange of gases in the lungs and tissues. Hypoxia, asphyxia and cyanosis. Regulation of respiration. Respiratory efficiency test and artificial respiration.

Unit 4 (14 hrs)

1. Basic Acoustics of speech:
   • Vibrating system – simple harmonic motion – simple vibrating system – system with two or more masses – system with many modes of vibrations – vibration spectra. Waves – What is a wave? Progressive waves – sound waves – wave propogation – Doppler effect – reflection, diffraction, interference, absorption.
   Resonance of a mass spring vibrator- standing waves – partials, harmonics and overtones – Acoustic impedance – Helmholtz resonator – sympathetic vibrations.

2. Mechanism of speech and language production- II
   • Anatomy and physiology of laryngeal system
   • Development of voice
   • Bases of pitch and loudness change mechanism

Unit 5 (12 hrs)

Mechanism of speech and language production- III
• Anatomy and physiology of articulatory system
• Anatomy and physiology of resonatory system

LIST OF BOOKS

Compulsory Reading:

1) Speech Correction: An Introduction to Speech Pathology and Audiology (8th Ed.). Van Riper, C and Emerick, L. (1990). New Jersey: Prentice Hall Inc.
2) Singh, I. (1996). Textbook of Anatomy with Color Atlas, Vol. III Jaypee Brothers.
3) Zemlin, W.R. (1981). Speech and Hearing Science: Anatomy and Physiology, (2nd Ed.). Englewood Cliffs, New Jersey: Prentice Hall.

Additional / Optional Reading:

1) Minifie, F.D., Hixon, T.J.,and Williams, F. (1973). Normal aspects of Speech, Hearing and Language. New Jersey: Prentice Hall Inc.
2) Skinner, P.H. and Shelton, R.L. (1978). Speech, Language and Hearing- Normal Processes and Disorders. (2nd Ed.). New York: John Wiley and Sons.
3) Human Communication Disorders: An Introduction (4th Ed.). Shames, G.H. Wiig, E.H. & Secord, W.A. (1994) New York: Merill Publishing Co.
4) Speech and Hearing Science, Anatomy and Physiology (3rd ed.). Zemlin, W.R.(1988) New Jersey: Englewood Cliffs
5) Human Communication & Its Disorders (2nd Ed.). Boone, D.R. & Plante, E. (1993). New Jersey: Prentice Hall Inc.
6) Palmer, J.M. (1984). Anatomy for Speech and Hearing, (3rd Ed.). New York: Harper and Row.
7) Perkins, W.H. and Kent, R.D. (1986). Textbook of Functional Anatomy of Speech, Language and Hearing. London: Taylor and Francis.
8) Gray's Anatomy. (37th Ed.). Williams Warwick and Dyson Banniser. (1989). Churchill

B 1.2: INTRODUCTION TO HEARING & HEARING SCIENCES

(Total = 64 hrs)

Unit 1 (12 hrs)

• Origin of Audiology
• Its growth & development (since World War II)
• Its growth in India
• Scope of Audiology
• Branches of Audiology

Unit 2 (14 hrs)

• Audiovestibular system: Anatomy of the external, middle and internal ears. Ascending and descending auditory and vestibular pathways.
• Physiology of the external, middle & inner ear, central hearing mechanisms, cochlear microphonics, action potentials, theories of hearing (AC & BC)
• Vestibular system: Functions of utricle, saccule and vestibular apparatus. Posture and equilibrium. Tests of posture and equilibrium
• Role of hearing (threshold concept, binaural hearing, head shadow, pinna shadow effect, MAF, MAP – Curve for threshold of hearing) & Causes of hearing impairment

Unit 3 (14 hrs)

• Sound Pressure, Power and Loudness. Physical and psychophysical scales, Equal loudness contours, Frequency weighting curves, combined sources, Pitch and
Timbre. Physical and psychophysical scales. Fourier analysis of complex Tones
• dB concept: power and pressure formulae: zero dB reference for pressure and power calculation of actual SPL, reference and dB values with any to given values, calculation of overall dB when two signals are superimposed.
• Phones and Sones: relation between phones and sones; use of phone and sone; computation of relative loudness of two given sounds using these graphs. Frequency and intensity, their psychological correlates: dL for frequency and intensity

Unit 4 (12 hrs)

• Causes of hearing loss
 Genetic (congenital, of late onset, progressive, syndromic/non-syndromic)
 Non-Genetic (Congenital/acquired)
 Importance of case history in identifying the cause of hearing loss

Unit 5 (12 hrs)

• Tuning fork tests (Rinne, Weber, Bing, Schwabach), interpretation, merits &demerits.
• Basic concepts of AC & BC testing
• procedure
• interpretation
• precautions to be taken while testing
• Theory of bone conduction

LIST OF BOOKS

Compulsory Reading:

1) Hodgson, H.R. (1980) Basic Audiologic Evaluation, London Williams and Wilkins.
2) Martin, F.N. (1991), Introduction to Audiology, IV Edition, New Jersey: Frentice Hall.
3) Newby, H.A. (1985), Audiology, New York: Appletion-Century-Crofts.
4) Testing, interpretation and recording - ISHA Battery (1990). ISHA publication.
5) The Science of sound – Thomas D. Rossing, Addion – Wasloy Publishing Company
6) Architectural Acoustics. Egan, M. D. Mc Graw Hill Inc, (1988)
7) Bess and Humes (1990) Audiology - Fundamental. Williams and Wilkins, London.
8) Davis and Silverman, (Latest Edition). Hearing and deafness. Holt, Rinehats & Winston, London.
9) Rose, D.M. (Ed.) 1978), Audiological Assessment, New Jersey: Prentice Hill.

Additional/Optional Reading:

10) Beagly, H.A. (Ed.) (1981). Audiology and Audiological Medicine. Vol. 1, Oxford University Press.
11) Relevant BIS documents

B1.3 PSYCHOLOGY RELATED TO SPEECH AND HEARING

(Total = 64 hrs)

Unit 1 (12 hrs)

Introduction to psychology, Definition and goals, Historical Approaches, Modern Approaches, Methods of psychology, Areas of Specialization in Psychology, APA and Divisions of APA, Applied Psychology

Unit 2 (12 hrs)

Sensation and Perception

Sensory Systems, Extra Sensory Perception, Three Approaches to Perception – Psychophysics, Organization, Recognition

Unit 3 (8 hrs)

Attention, types of attention, selective attention, divided attention, sustained attention, methods to improve attention

Unit 4 (8 hrs)

Thinking – What is thinking, Problem solving, Decision making, Reasoning,

Unit 5 (8 hrs)

Memory - What is memory, Models of memory, Forgetting – types of forgetting, methods to improve memory

Unit 6 (8 hrs)

Intelligence – What is intelligence, measuring intelligence – IQ, MA, factors affecting intelligence,

Unit 7(8 hrs)

Health, Stress, and Coping

What is health, stress, stressor, conflict and coping. Positive Psychology

LIST OF BOOKS

Compulsory Reading:

1) Bernstein, D.A. (2011). Essentials of Psychology. Australia: Wadsworth Cencage Learning
2) Bernstein, D.A., Penner, L.A., Clarke – Stewart, A., & Roy, E.J. (2008). Psychology. New York: Houghton Mifflin Company.
3) Carter, K., Seifert, C.M., & Kwiatkowski, J. (2013). Learn Psychology. USA: Jones and Bartlett Learning.
4) Coon, D., & Mitterer, J.O. (2007). Introduction to Psychology. Australia: Thomson -Wadsworth.
5) Lefton, L.A. (2000). Psychology. Boston: Allyn and Bacon
6) Plotnik, R. (2002). Introduction to Psychology. Australia: Wadsworth Thomson Learning

Additional/Optional Reading:

7) Woolfolk, E. & Lynch J. (1982). An integrative approach to language disorders in children. New York: Grune and Stratton

B 1.4 BASIC MEDICAL SCIENCES RELATED TO SPEECH & HEARING

(Total = 64 hrs)

PART A (UNIT 1) ANATOMY

Unit 1 (12 hrs)

(a) General introduction, definitions, Coronal / saggital / plane) Planes. Definition of anatomy, morphology, physiology, histology, embryology.
(b) Definition of Cell and organelles, tissue, organ system, specialized tissues like nervous tissue, vascular tissue, muscle and bone tissue.
(c) Nervous system: Definition of neuron, synapse, reflex action, bio electrical phenomena, action potential, depolarisation, division and functions of the nervous system, brain – general lobes, reticular formations, basal ganglia, cerebellum, circle of willis, cranial nerves, spinal cord, CSF – formation & flow.
(d) Circulatory system: Definition of capillaries, arteries, veins, cardiac cycle, blood brain barrier, aneurysm, vascular shock – its reference to aphasia / speech disorders.
(e) Respiratory system: General outline, detailed study of trachea, larynx and nasopharynx,

PART B (UNIT 2) PHYSIOLOGY

Unit 2 (14 hrs)

(a) Definition of inflammation, infection, tumor – benign & malignant, tissue healing.
(b) Mechanism of respiration – internal and external influence, nervous control – vital capacity – tidal volume, residual air, artificial respiration (in brief).
(c) Genetics :introduction – structure of DNA and RNA, karyotyping, family tree (pedigree chart), symbolic representation, inheritance, autosomal dominant, autosomal recessive, sex chromosomal disorders, structural aberrations, mutation(in brief).
(d) Endocrine system: Definition of hormone, functions of thyroid hormone, growth hormone, androgen, testosterone and its influence in voice disorders.

PART C (UNIT 3, 4, 5) ENT

Unit 3 (14 hrs)

(a) Anatomy & Physiology of external, middle & inner ear, auditory pathways, vestibular pathway. Diseases of the external middle and inner ear leading to hearing loss: Congenital malformations, traumatic lesions, infections, management of middle ear and Eustachian tube disorders.
(b) Other causes of hearing loss – Facial paralysis, Tumors of the cerebello- pontine angle, Acoustic neuroma. Infection and management of inner ear diseases. Cochleo-vestibular diseases and its management.

Unit 4 (12 hrs)

Anatomy & Physiology of pharynx & oro-peripheral structures

(a) Causes of speech disorder, Disorders of the mouth, Tumors of the jaw and oral cavity, nasopharynx and pharynx, pharyngitis, Diseases of tonsils and adenoids.

(b) Oesophageal conditions: Congenital abnormality – Atresia, Tracheo-oesophageal fistula, Stenosis, Short oesophagus. Neoplasm – Benign, Malignant, Lesions of the oral articulatory structures like cleft lip, cleft palate, submucosal cleft, Velopharyngeal incompetence.

Unit 5 (12 hrs)

(a) Anatomy & Physiology of larynx – physiology of phonation / physiology of respiration.

(b) Congenital diseases of the larynx – difference between an infant and an adult larynx. Stridor – causes of infantile stridor. Disorders of structure – Laryngomalacia, Bifid epiglottis, Laryngeal web, Atresia, fistula, Laryngeal cleft, Tumors and Cysts, Laryngitis, Laryngeal trauma and Stenosis. Neuromuscular dysfunctions of the larynx – Vocal cord palsy, Spastic dysphonia, Hypothyroidism, gastro oesophageal reflux disorders, Laryngectomy, artificial larynx, oesophageal speech, tracheo oesophageal puncture.

LIST OF BOOKS

Compulsory Reading:

1) Singh, I. (1996). Textbook of Anatomy with Color Atlas, Vol. III Jaypee Brothers.

2) Zemlin, W.R. (1981). Speech and Hearing Science: Anatomy and Physiology, (2nd Ed.). Englewood Cliffs, New Jersey: Prentice Hall.

3) Alper, C.M., Myers, E.N., Eibling, D.E. (2001). Decision making in ear, nose & throat disorders. W.B. Saunders Company, Philadelphia.

4) Dhingra, P.L. (1992). Diseases of Ear, Nose & Throat. Churchill Livingstone, New Delhi.

5) Graym R.F., Hawthorne, M. (1992). Synopsis of Otolaryngology. Butterworth Heinemann Ltd, Oxford. 5th Edition.

6) Ramalingam, K.K., Sreeramamoorthy, B. (1990). A short practice of Otolaryngology. A.I.T.B.S. Publishers Distributors.

7) Scott-Brown, W.G., Ballantyne, J., Groves, J. Diseases of the nose & throat. Butterworth & Co., Ltd. 2nd edition, Chichester.

8) Inderbeer Singh (1996) – Text book of embryology.

Additional / Optional Reading:

9) Palmer, J.M. (1984). Anatomy for Speech and Hearing, (3rd Ed.). New York: Harper and Row.

10) Perkins, W.H. and Kent, R.D. (1986). Textbook of Functional Anatomy of Speech, Language and Hearing. London: Taylor and Francis.

11) Gray's Anatomy. (37th Ed.). Williams Warwick and Dyson Banniser. (1989). Churchill Livingstone.

B1.5 INTRODUCTION TO LINGUISTICS

(Total =30 hrs)

Unit 1 (6 hrs)

Introduction to Linguistics - characteristics of language, difference between animal communication systems and human language. Functions of language brief introduction to different branches of linguistics and special reference to sociolinguistics, psycholinguistics, neurolinguistics and clinical linguistics

Unit 2 (6 hrs)

Components of Language: Phonology

Phonetics: Definition and branches. Brief sketch of articulatory, acoustic and auditory phonetics. air -stream mechanism, articulatory classification of sounds segmentals and supra-segmentals, classification description and recognition of vowels and consonants.

Phonology: definitions of phoneme and allophones, classification of speech sounds on the basis of distinctive features, phonotactics, phonotactics patterns of English and Indian languages, phonemic analysis: principles and practices; their practical implications for speech pathologists, syllable: types and structure of syllables.

Unit 3 (6 hrs)

Components of Language: Semantics

Concept of meaning. Different types of meanings. Concepts of synonyms, homonyms and antonyms. Semantic ambiguity.

Unit 4 (6 hrs)

Components of Language: Morphology & Syntax

Morphology: Concepts of morph, morpheme and allomorph and their relationship. Morphemic analysis. Morpheme types-Inflectional and derivational, bound and free. Word: Definition, Types content and function words, processes of word formation. Paradygmatic and syntagmatic relationship

Syntax: grammatical and syntactic categories, sentence types, syntactic analysis, I.C. analysis, phrase structure grammar, transformational grammar. Components and functions of grammar. Acceptability and Grammaticality of sentences. Mean length of utterance

Unit 5 (6 hrs)

Components of Language: Pragmatics

Introduction to verbal and non-verbal communication and other indicators, intent of communication.

LIST OF BOOKS

Compulsory Reading:

1) Brosnahan, L.F. and Malmberg, B. (1970) Introduction to Phonetics. Cambridge: University Press.
2) Fromkin, V. and Rodman, R. (1993) An Introduction to Language. (5th Ed.). New York: Harcourt Brace Jovanovich.
3) O'Connor. (1993). Phonetics. Hammondsworth: Penguin Books.
4) Yule, G (1996). The Study of Language: An Introduction. (2nd Ed.). Cambridge: Cambridge University Press. (Low price edition. 1997)

Additional / Optional Reading:

5) Akmajian. A. et al. (1990). Linguistics: An Introduction to Language and Communiction. (3rd Ed.). MIT Press.
6) Catford, J.C. (1982). Fundamental Problems in Phonetics. Edinburg University Press.
7) Clark, J. and Yallop, C. (1995). An Introduction to Phonetics and Phonology. (2nd Ed.). Basil: Blackwell.
8) Fry, D.B. (1979). The Physics of Speech, Cambridge University Press.
9) Ladefoged P. (1992). A course in Phonetics. (3rd Ed.). New York: Harcourt Brace Jovanovich.
10) Lyons, J. (Ed.). (1970). New Horizons in Linguistics. Hammondsworth: Penguin Books.

B 1.6: ENGLISH COMMUNICATION

(Total =30 hrs)

Unit 1 (4 hrs)
Communication skills in English
Introduction
The importance of English
English as the first or second language
Uses of English
Other uses of English

Unit 2 (6 hrs)
Listening skills
What is listening?, types of listening ,objectives active listening- an effective listening skill, note taking tips, barriers for good listening ,purpose of listening, outlines and signposting, gambits, exercise

Unit 3 (6 hrs)
Reading skills
Importance of reading, definition of reading, levels of reading, requirements of reading, types of reading, techniques of reading, academic reading tips, exercise

Unit 4 (8 hrs)
Writing skills
What is writing?, the sentence, the phrase, kinds of sentences, parts of sentence, parts of speech, articles, types of sentences, time management tips, test preparation tips, tips for taking exams, what is a paragraph?, construction of paragraph, linkage and cohesion, example, exercise
Academic essay writing, thesis, procedure for thesis approval and deposit, summary, precis writing, report abstracts
Letter writing, memo, cover letter, resume writing

Unit 5 (6hrs)
Communication skills- speaking skills
Definition, barriers of communication, types of communication, know what you want to say

LIST OF BOOKS
Compulsory Reading:

1. Barr, P., Clegg, J. & Wallace, C. (1981). Advanced reading skills. London: Longman.
2. Fromkin, V. & Rodman, R. (1983). An introduction to language. London: Holt-Saunders.
3. Smith, F. (1978). Reading. Cambridge: Cambridge University Press.
4. Guiora, A. Z., Paluszny, M., Beit-Hallahmi, B., Catford, J. C., Cooley, R. E. & Dull, C. Y. (1975). Language and person: Studies in language behaviour. Language Learning, 25, 43-61.
5. GVU's 8th WWW user survey. (n.d.). Retrieved from http://www.cc.gatech.edu/gvu/usersurveys/survey1997-10/
6. Kinsella, V. (Ed.). (1978). Language teaching and linguistics: Surveys. Cambridge: Cambridge University Press.

Additional/ Optional Reading:

7. Oller, J. W. & Richards, J. C. (Eds.). (1973). Focus on the learner. Rowley, Massachusetts: Newbury House.
8. Longman dictionary of contemporary English. (1978). London: Longman.
9. Chomsky, N. (1973). Linguistic theory. In J. W. Oller & J. C. Richards (Eds.), Focus on the learner (pp. 29-35). Rowley, Massachusetts: Newbury House.

B 1.7 CLINICAL PRACTICUM-(a) Speech Language Pathology

At the end of Semester **I**, the student should be able to carry out the following –

1. Taking case history of a minimum of 10 individuals (5 normal & 5 clients with complaints of speech-language problems)
2. Label and identify structures of the speech mechanisms with the help of charts, models, specimens and computer software
3. Conduct Oral Peripheral Mechanism examination on at least 5 normal and 5 children/adults with speech language complaints
4. Analyze the following in normal subjects:
   • Pitch – normal / high / low
   • Loudness - normal / loud / soft
   • Quality – normal / hoarse / harsh / breathy / hyper - nasal / hypo –nasal
   • Rate of speech - – normal / fast / slow
   • Articulation – normal / abnormal
   • Fluency – normal / abnormal
   • Intelligibility – using the AYJNIHH intelligibility rating scale
5. Use varying range of pitch and loudness
   • Measure F0, Vital capacity, phonation duration, rate of speech, Alternate Motion Rates and Sequential Motion Rates, s/z ratio in 5 normal individuals
6. Measure in 2 normal samples (with the help of video or live)
   • Mean Length of Utterance (MLU)
   • Syllable structure
   • Syntactic structures
   • Communication intent
7. Use proformae for the following disorders:
   • Articulation
   • Voice
   • Fluency
   • Cleft lip and palate
   • Child language assessment
8. Use scale / test for:
   • Receptive language skills
   • Expressive language skills

   Receptive Expressive Emergent Language Scale (REELS)
   3-Dimensional Language Acquisition Test (3DLAT)
   Scales of Early Communication Skills for Hearing impaired children (SECS) and Indian tests
   Observation of a minimum of 5 diagnostic cases, 5 therapy cases
   Writing of observation reports of the above
   Maintenance of a clinical diary
   Maintenance of a clinical work record to be submitted at the end of the term

B 1.7 CLINICAL PRACTICUM-(b) Audiology

At the end of Semester **I**, the student should be exposed and be able to carry out the following:
1. Public information materials (videos, pamphlets, booklets etc.)
2. Taking case histories of 10 adults and 10 children with normal hearing & with hearing impairment under supervision.
3. Analyse 10-15 case histories of adults and children with hearing impairment.
4. Undergo pure-tone audiometry. Become familiar with different types of sound stimuli used for assessment of hearing and sound generator softwares.
5. Identify the different types of audiometers (at least 1 portable & 1 diagnostic) and accessories referring to their respective manuals. Get familiar with the various parts of audiometers and their functions. Carry out listening checks of audiometers. Trouble-shoot audiometers. List the different earphone/ear cushion combination, BC vibrator, study the same and report the status of the same.
6. Prepare 0 dB HL equivalent chart with different earphone/ear cushion combinations.

II SEMESTER

B 2.1 SPEECH, LANGUAGE DEVELOPMENT AND DISORDERS

(Total = 64 hrs)

Unit 1 (16 hrs)

Development of speech and language:
Development of phonology, semantics, morphology, syntax, pragmatics.
Development of communicative intent
Speech and language skills of infants, toddlers, preschoolers, school-going children and adolescents.

Unit 2 (16 hrs)

Definition, Etiology, Characteristics, Classification and Impact of
Hearing Impairment
Visual Impairment
Mental Retardation
Cerebral Palsy
Seizure disorders
Multiple Impairment
Introduction to assessment procedures, differential diagnosis and management.

Unit 3 (16 hrs)

Definition, Etiology, Characteristics and classification of
Autism Spectrum Disorders/Pervasive Developmental Disorders
Attention Deficit Disorder/ Attention Deficit Hyperactive Disorder
Introduction to assessment procedures, differential diagnosis and management.

Unit 4 (16 hrs)

Definition, Etiology, Characteristics, Classification and Impact of
Specific Language Impairment
Acquired aphasias in childhood
Traumatic Brain Injury
Learning Disability
Introduction to assessment procedures, differential diagnosis and management.

LIST OF BOOKS

Compulsory Reading:

1) Reed, V. (1994). An Introduction to children with language disorders. (2nd Ed.) New York: Macmillan.
2) Nelson N. W (1998). Childhood language disorders in context – infancy through adolescence, Allyn and Bacon, Boston.
3) Hegde, M. N. (1996). A Coursebook on Language Disorders in Children. San Diego: Singular Publishers.
4) Ladefoged P. (1992). A course in Phonetics. (3rd Ed.). New York: Harcourt Brace Jovanovich.

5) Lees, J.A. and Urwin, S. (1991): Children with Language Disorders. Whurr Publishers

Additional/Optional Reading:

6) Woolfolk, E. & Lynch J. (1982). An integrative approach to language disorders in children. New York: Grune and Stratton.
7) Thirumalai M. S. Shyamala Chengappa (1988) Simultaneous Acquisition of two languages CIIL, Mysore
8) Fromkin, L.F. and Rodman, R. (1993). An Introduction to Language (5th Ed.). New York: Harcourt Brace Jovanovich
9) Subba Rao (1992). Developing communication skills in MR, NIMH, Secunderabad.
10) Shyamala K. Chengappa (1992). Speech and Language of the cerebral palsied, CIIL,Mysore.
11) Shyamala K. Chengappa (1986). Introduction to speech disorders in children an introduction IED cell, Port Blair, Anadaman & Nichobar.
12) O'Connor. (1993). Phonetics. Hammondsworth: Penguin books
13) Yule, G (1996). The Study of Language: An Introduction. (2nd Ed.). Cambrige:
(a) Cambridge University Press.
14) Lyons, J. (Ed.). (1970). New Horizons in Linguistics. Hammondsworth:
(b) Penguin Books.
15) Akmajian. A. et al. (1990). Linguistics: An Introduction to Language and
(c) Communication

B 2.2 INTRODUCTION TO AUDIOLOGY & AUDITORY TESTS

(Total = 64 hrs)

Unit 1: **(14 hours)**

• Pure Tone audiometry: Need and scope
• Instrumentation
• Standards
• Different types of transducers
• Permissible ambient noise levels for audiometric testing
• Calibration: Biological and instrumental for AC & BC transducers

Unit 2: **(14 hours)**

• Classification of audiograms
• Sound field & closed field testing
• Factors affecting AC & BC testing
• Screening Vs Diagnostic pure tone testing
• Extended high frequency testing & its interpretation

Unit 3: **(12 hours)**

• Masking: Definition, types of masking, types of noises, critical band concept,
• Terminology related to masking: Test ear, non-test ear, masker, maskee, crossover, cross hearing and shadow curve
• Interaural attenuation; Factors affecting IA; Criteria for masking during AC & BC
• Factors determining amount of masking noise, AB gap in masked ear, masking dilemma in bilateral symmetrical conduction hearing loss.
• Fusion Inferred Test (FIT)

Unit 4: **(12 hours)**

• Orientation to speech audiometry
• Need for speech audiometry
• Speech recognition threshold, speech identification score, UCL, MCL, dynamic range, articulation index
• Tests developed in India and abroad
• Factors affecting speech audiometry
• Limitations of speech audiometry
• Masking for speech audiometry
• PI-PB function

Unit 5: **(12 hours)**

• Acoustics of Rooms. Sound propagation in outdoors and indoors.
• Direct, early and reverberant sound. Calculation of reverberation time.
• Air absorption. Background noise.
• Loudspeaker placement and directivity.
• Sound images and multiple sources.
• Sound field in listening rooms. Quadraphonic sound.
• Listening with earphones. Pressure field, free field and diffused field.

• Audiometric test rooms – Basic requirements concept and structure – transmission loss,
• NRC rating – Standards for sound treated rooms – Basic requirements, concept and structure – standards.
• Classrooms of hearing impaired children – Basic requirements, concept and structure – standards.

LIST OF BOOKS

Compulsory Reading:

1. Hodgson, H.R. (1980) Basic Audiologic Evaluation, London Williams and Wilkins.
2. Martin, F.N. (1991), Introduction to Audiology, IV Edition, New Jersey: Frentice Hall.
3. Martin, H (1987), Speech Audiometry. Whurr Publisher, London
4. Newby, H.A. (1985), Audiology, New York: Appletion-Century-Crofts.
5. Testing, interpretation and recording - ISHA Battery (1990). ISHA publication.

Additional Reading:

6. Beagly, H.A. (Ed.) (1981). Audiology and Audiological Medicine. Vol. 1, Oxford University Press.
7. Bess and Humes (1990) Audiology - Fundamental. Williams and Wilkins, London.
8. Davis and Silverman, (Latest Edition). Hearing and deafness. Holt, Rinehats & Winston, London.
9. Rose, D.M. (Ed.) 1978), Audiological Assessment, New Jersey: Prentice Hill.
10. Relevant BIS

B 2.3 SPEECH LANGUAGE DIAGNOSTICS AND THERAPEUTICS

(Total = 64 hrs)

A. Speech language diagnostics

Unit 1 (12 hrs)

1. Case history – need for the case history – essential factors to be included in the case history form – comparison of adults vs. children case history – usefulness of the case history
2. Basic terminologies and concepts

• Introduction to diagnostics
• Terminologies in the diagnostic process
• General principles of diagnosis
• Diagnostic setup and tools

Unit 2 (14 hrs)

1. Diagnostic approaches and methods

• Approaches to diagnosis – case history, need for the case history, essential factors to be included in the case history form, comparison of adults vs. children case history, usefulness of the case history.
• Interview – principles and techniques
• Self-reports, questionnaire, observations.
• Diagnostic models – SLPM, Wepman, Bloom and Lahey
• Types of diagnoses – Clinical diagnosis, direct diagnosis, differential diagnosis, diagnosis by treatment, diagnosis by exclusion, team diagnosis, instrumental diagnosis, provocative diagnosis, Provisional diagnosis; advantage/disadvantages
• Characteristics of a good clinician as diagnostic

B. Speech therapeutics

Unit 3 (12 hrs)

1. Basic concepts of therapeutics

• Terminologies in speech therapeutics
• General principles of speech and language therapy
• Speech therapy set-up
• Individual and group therapy
• Integrated and inclusive education

Unit 4 (14 hrs)

1. Procedures for speech-language therapy

• Approaches to speech and language therapy – formal, informal and eclectic approaches
• Types of speech and language therapy
• Planning for speech and language therapy – goals, steps, procedures, activities
• Techniques for:

Speech and language therapy for various disorders of speech and language
Importance of reinforcement principles and strategies in speech and language therapy, types and schedules of rewards and punishment

Unit 5 (12 hrs)

1. Clinical documentation and professional codes
• Documentation of diagnostic, clinical and referral reports
• Introduction to parent counseling, facilitation of parent participation and transfer of skills, follow-up
• Evaluation of therapy outcome
• Ethics in diagnosis and speech language therapy
• Self-assessment and characteristics of a clinician.

LIST OF BOOKS

Compulsory Reading:

1) Meyer, S.M. (1998). Survival guide for the beginning speech-language clinician. Maryland: Aspen Publishers.
2) Owens, R.E. (1999). Language disorders: Functional approach to assessment and intervention. Boston: Allyn & Bacon Inc.
3) Tomblin, E. et.al. (1994). Diagnosis in Speech language pathology. San Diego: Singular Publishing Inc.

B 2.4 MANAGEMENT OF THE HEARING IMPAIRED

(Total = 64 hrs)

Unit 1 (14 hrs)

• Definitions and goals of rehabilitation & aural rehabilitation
• Early identification and its importance in aural rehabilitation
• Unisensory Vs Multisensory approach
• Manual Vs oral form of communication for children with hearing impairment
• Total communication

Unit 2 (12 hrs)

• Methods of teaching language to the hearing impaired
o Natural method
o Structured method
o Computer aided method

Unit 3 (14 hrs)

• Educational problems of children with hearing impairment in India
• Educational placement of hearing impaired children
• Criteria for recommending the various educational placements
• Factors affecting their outcome
• Counseling the parents and teachers regarding the education of the hearing handicapped
• Parent Infant Training Programme (PIP) & Mother's Training Programme, Home training – need, preparation of lessons; correspondence programs (John Tracey Clinic, SKI-HI), follow up

Unit 4 (14 hrs)

• Introduction to hearing aid technology: Parts of hearing aids & its functions
• Type of hearing aids:
- Body level Vs ear level
- Monaural Vs Binaural Vs Pseudobinaural
- Directional hearing aids Vs modular hearing aids
• Classroom amplification devices; Group amplification systems– hard wired, induction loop, FM, infrared rays.
• Setting up class rooms for the hearing handicapped
• Classroom acoustics preferential seating and adequate illumination

Unit 5 (10 hrs)

• Ear moulds: Importance, types (hard, soft), procedure of making each type of ear mould, styles of ear moulds, criteria for selection of one style over the other, ear mould modifications, EAC of hearing aid along with ear mould.
• Importance of counseling for users & parents – importance of harness, BTE loops. Tips to facilitate acceptance of hearing aids, battery life, battery charger.Counseling for geriatric population, Trouble shooting of hearing aids

LIST OF BOOKS

Compulsory Reading:

1. Sanders, D. A. (1993). Management of Hearing Handicap; Infants to Elderly, 3rd Ed., New Jersey, Prentice Hall.
2. Tucker, I., & Nolan, M. (1984). Educational Audiology. London: Croom Helm, Chapter.10.
3. Markides A (1977) Binaural hearing aids, Academic Press Inc., London.
4. Hodgson HR and Skinner (PH) (1977, 1981), Hearing aid Assessment and use in audiologic habilitation, Williams and Wilkins, Baltimore.
5. Pollack M. (1980). Amplification for the hearing impaired. NY: Grune and Stratton.

Additional Reading:

1. Davis, J.M. and Hardick, E.J. (1981). Rehabilitative Audiology for Children and Adults. New York: John Wiley and Sons.
2. Ross, M. Brackett, D. and Maxon, A.B. (1991). Assessment and management of mainstreamed hearing-impairment children: Principles and practice. Austin: Pro.Ed.
3. Lynas, W. (2000). Communication options. In J. Stokes (Ed.), Hearing impaired infants – Support in the first eighteen months. London: Whurr Publishers Ltd.
4. Sims, L.G., Walter, G.G., and Whitehead, R.L. (1981). Deafness and Communication: Assessment and Training. Baltimore: Williams and Wilkins.
5. Alpiner, J.G. (1982). Handbook of Adult Rehabilitative Audiology. Baltimore: Williams and Wilkins.
6. Chermak, G.D. (1981). Handbook of Audiological Rehabilitation. C.C.Thomas.
7. Ebbin, J.B. (1974). Critical Age in Hearing. In C.Griffiths (Ed), Proceeding of the International Conference on Auditory Techniques. Illinois: Charles C. Thomas.
8. Griffiths, C. (1974). Early Identification - Plus the Auditory Approach. In C. Griffths (Ed.), Proceeding of the International Conference on Auditory Techniques. Illinois: Charles C. Thomas.
9. Borastein, H. (1977). Systems of Sign. In L.J. Bradford & W.G. Hardy (Eds.), Hearing and Hearing-Impairment. New York: Grune and Stratton Inc.
10. Hull, R.H. (Ed). (1982). Rehabilitative Audiology. New York: Grune and Stratton Inc.
11. Fitzgerald, E. (1929). Straight Language for the Deaf. McClure.
12. Jackson, A. (1981). Ways and Means-3. Hearing-Impairment a Resource Book of Information, Technical Aids, Teaching Material, and Methods used in the Education of Hearing-Impaired Children. Hong Kong: Somerset Education Authority.
13. Tebbs, T. (1978). Ways and Means: A Resource Book of Aids, Methods, Materials, Materials and Systems for use with the Language Retarded Child. Hong Kong: Somerset Education Authority.
14. Correspondence Program for Parents of the Deaf, John Tracy clinic.
15. Nix, G.W. (1976) Mainstream Education for Hearing-Impaired Children and Youth. New York: Grune and Stratton Inc.
16. Ross, M. Brackett, D. and Maxon, A.B. (1991). Assessment and management of mainstreamed hearing-impairment children: Principles and practice. Austin: Pro.Ed.
17. Webster, A. & Ellwood, J. (1985). The Hearing-Impaired Child in the Ordinary School. London: Croom

B2.5 BASIC ELECTRONICS RELATED TO SPEECH AND HEARING

(Total = 30 hrs)

Unit 1 (6 hrs)

(Operational characteristics, types and specifications - No design aspects. Concepts and block diagrams only)

Basics of electricity - Direct and alternating current, AC & DC Power supplies, AC voltage stabilizers, UPS.

Passive and active circuit elements – Resistors, capacitors, inductors, transformers, semiconductor diode and transistors, Linear and digital Integrated circuits, microprocessors. Filters, Linear and non-linear Amplifiers and Oscillators, amplifier power and distortion, Transducers – microphone, loudspeaker, Electrodes.

Unit 2 (10 hrs)

Basics of digital signal processing – Analog signal, digital signal, A to D and D to A conversion, Basic concept of Digital Signal Processing and its implementation, How does a DSP based system work? Application- DSP based hearing aids.

Unit 3 (6 hrs)

Measuring Instruments – Multi-meter – Cathode ray oscilloscope – Audio generator – Function Generator – Frequency counter – Sound Level Meter – Spectrum Analyzer – Distortion Analyzer – Level Recorder (Demonstration and handling of the above instruments.)

Unit 4 (8 hrs)

Principle of operation, block diagram, calibration, maintenance and troubleshooting, procedures for all types of hearing aids, audiometers, immittance meters, electro-acoustic impedance bridge, induction loop system, speech spectrograph, artificial larynx, CAE analyzer. Safety aspects, care and preventive maintenance of biomedical instrument.

LIST OF BOOKS

Compulsory Reading:

1. Basic Electronics: A text-lab manual; Paul B Zbar, Albert, P. Malvino. (5th Edn), Mc Graw Hill Inc, (1983)
2. Grob (1977).Basic electronics. Tokyo: McGraw Hill.
3. Borden, G.N. & Harris, K.S. 91980).Speech science primer. USA: Williams & Wilkins Co.
4. Fant, G, (1960). Acoustlc theory of speech production. Hague: Mouton and Co.
5. LIberman, P. (1977). Speech physiology and acoustic phonetics. New York: McMillan Publishing Co.

B2.6 ENVIRONMENTAL STUDIES

(Total = 30hrs)

Unit 1 (2 hrs)
The multidisciplinary nature of environmental studies
Definition, scope and importance

Unit 2 (4 hrs)
Natural Resources
Renewable and non-renewable resources
Natural resources and associated problems
Role of an individual in conservation of natural resources
Equitable use of resources for sustainable lifestyles

Unit 3 (6 hrs)
Eco Systems
Concept of an ecosystem
Structure and function of an ecosystem
Producers, consumers and decomposers
Energy flow in the ecosystem
Ecological succession
Food chains, food webs and ecological pyramids
Introduction, types, characteristic features, structure and function of the following
Ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4 (4 hrs)
Biodiversity and its conservation
Introduction – Definition, genetic, species and ecosystem diversity
Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity

Unit 5 (4 hrs)
Environmental Pollution
Definition, Causes, effects and control measures of:-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
Solid waste management: causes, effects and control measures of urban and industrial wastes
Role of an individual in prevention of pollution

Unit 6 (4 hrs)

Social issues and the environment
Environment Protection Act
Air (Prevention and Control of Pollution) Act
Water (Prevention and control of pollution) Act
Wild life protection Act
Forest conservation Act
Issues involved in enforcement of environment legislation
Public awareness

Unit 7(6 hrs)

Human population and the Environment
Population growth, variation among nations
Population explosion, family welfare programme
Environment and human health
Human rights
Value education
Women and child welfare
Role of information technology in environment and human health

LIST OF BOOKS

Compulsory Reading:

1) Agarwal.K.C 2001 Environmental Biology. Nidi Publ.Ltd.Bikaner
2) Bharucha Erach. The Biodiversity of India, Mapin Publishing Pvt. Ltd, Ahmedabad – 380 013, India email: mapin@iccnel.net (R) Brunner R.C 1989, Hazardous Waste
3) Cark R.S Marine Pollution, Clanderson Press Oxford (TB)
4) Cunningham, W.P. Cooper, T H Gorhani, E & Hepworth, M.T 2001 Environmental Encyclopedia, Jaico Publ. House, Mumbai 1196 p
5) De A.K. Environmental Chemistry, Wiley Eastern Ltd
6) Down to Earth, Centre for Science and Environment (R)
7) Gleiek H.P 1993. Water in crisis. Pacific Institute for Studies in Dev., Environment & Security, Stockholm Env. Institute. Oxford Univ. Press 473 p
8) Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)

Additional/ Optional Reading:

9) Jadhav H & Bhosale V.M. 1995, Environmental Protection and laws, Himalaya Pub. House, Delhi 284 p
10) Mekinney M.L. & Schocl, R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition 639p
11) Mhaskar A.K, Matter Hazardous, Techno-Science Publication (TB)
12) Miller T.G Jr. Environmental Science, Wadsworth Publishing Co. (TB)
13) Odum, E.P 1971. Fundamentals of Ecology, W.B. Saunders Co. USA,574p
14) Rao M.N & Datta A.K. 1987. Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd 345p

B 2.7 CLINICAL PRACTICUM (a) Speech Language Pathology

At the end of Semester II, the student should be able to carry out the following –

1) Take case history of 10 individuals (5 normal & 5 cases with complaints of speech-language problems)

2) Label and identify structures of the speech mechanisms with the help of charts, models, specimens and computer software

3) Conduct Oral Peripheral Mechanism examination on at least 5 normals and 5 children/adults with speech language complaints

4) Observation of therapy of 10 clients with speech language disorders.

5) Observation of a minimum of 5 diagnostic clients and 5 therapy clients

6) Developing therapy material specific to 10 clients they have observed

7) Writing of observation reports of the above

8) Maintenance of a clinical diary

9) Maintenance of a clinical work record to be submitted at the end of the term

B 2.7 CLINICAL PRACTICUM - (b) Audiology

At the end of Semester I & II, the student should be exposed and be able to carry out the following:

1. Public information materials (videos, pamphlets, booklets etc.)

2. Taking case histories of 10 adults and 10 children with normal hearing & with hearing impairment under supervision.

3. Analyse 10-15 case histories of adults and children with hearing impairment.

4. Undergo pure-tone audiometry. Become familiar with different types of sound stimuli used for assessment of hearing and sound generator softwares.

5. Identify the different types of audiometers (at least 1 portable & 1 diagnostic) and their accessories referring to their respective manuals. Get familiar with the various parts of audiometers and their functions. Carry out listening checks of audiometers. Trouble-shoot audiometers. List the different earphone/ear cushion combination, BC vibrator, study the same and report the status of the same.

6. Prepare 0 dB HL equivalent chart with different earphone/ear cushion combinations.

7. Obtain audiograms of 10 normal subjects.

8. Observe /participate during audiological evaluation on a variety of cases under supervision. Plot audiograms; calculate inter-aural attenuation, occlusion effect.

9. Obtain audiograms under supervision on 20 adult clients (AC & BC).

10. Obtain audiograms with masking (5 cases)

11. Classify audiograms as per:

- Nature of hearing loss
- Degree of hearing loss
- Configuration of hearing loss

12. Observe calibration of audiometers (Demonstration) – AC/BC/Sound field, instruments used, identifying the instruments, combination of equipments for different types of calibration, preparing correction charts

SEMESTER III

B 3.1 ARTICULATION AND PHONOLOGICAL DISORDERS

(Total = 64 hrs)

Unit 1 (12 hrs)

1. Review of phonological development and articulatory mechanism
2. Fundamentals of Articulatory phonetics
3. Definition and types of coarticulation

Unit 2 (14 hrs)

1. Transcription methods in perceptual analysis
2. Phonological processes – types, language specific issues, identification and classification of errors.
3. Distinctive features – types, language specific issues, identification of errors and analysis.
4. Acoustic aspects of production and perception of speech sounds; use of spectrograms

Unit 3 (12 hrs)

1. Factors related to articulation and phonological disorders:

- Structural
- Cognitive – Linguistic
- Neurological
- Psychosocial
- Social
- Metalinguistic

Unit 4 (12 hrs)

1. Assessment procedures: Types of assessment, sampling procedures, scoring procedures, criteria for selection of assessment instruments
2. Assessment of Oral peripheral mechanism
3. Speech sound discrimination, stimulability and oral stereognosis.
4. Analysis and interpretation of data:

- Intelligibility and severity judgements
- Normative data
- Error patterns.

5. Characteristics of disordered phonology and differential diagnosis

Unit 5 (14 hrs)

1. Intervention: Stages of treatment and measuring improvement, long term goals, short term goals and activities for achieving goals in cases with misarticulation.
2. Issues in maintenance and generalization.
3. Team approach and professional communication (inter, intra professional and clientoriented)
4. Approaches to treatment: motokinesthetic, traditional approaches integral stimulation, phonological, distinctive feature, minimal contrast therapy, learning theories, programmed, paired – stimuli.
5. Computerized intervention packages, metaphon therapy

LIST OF BOOKS

Compulsory Reading:

1) Bernthal, J.E. and Bankson, N.W. (1988).Articulation and Phonological Disorders. (3rd Ed.). New Jersey: Prentice Hall Inc.

2) Weiss, C.E., Lillywhite, H.S. and Gordon, M.E. (1980). Clinical Management of Articulation Disorders. St. Louis: C.V. Mosby

3) Creaghead, N.A., Newman, A.W. and Secord, W.A. (1989). Assessment and remediation of articulatory and phonological disorders. (2nd Ed.). New York: Macmillan

Additional/Optional Reading:

4) Johnson, J.P. (1980). Nature and Treatment of Articulation Disorders. Springfield: Charles C. Thomas.

B 3.2 MAXILLOFACIAL ANOMALIES

(Total = 64 hrs)

CLEFT LIP AND PALATE

Unit 1 (12 hrs)

1. Etiological factors
2. Embryology of the Face and Palate
3. Types of Cleft lip and Palate
4. Classification systems
5. Syndromes

Unit 2 (14 hrs)

1. Velopharyngeal mechanism- muscles and function; inadequacy, incompetency and insufficiency
2. Speech and Language problems of individuals with Cleft
3. Associated problems of individuals with Cleft

Unit 3 (12 hrs)

1. Diagnostic procedures and Instruments used in Assessment of speech in Cleft palate
2. Team Management: Composition, responsibilities and co-ordinator

Unit 4 (14 hrs)

1. Treatment concepts
2. Treatment procedures for speech
3. Prosthetic speech appliances for patients with Cleft palate

GLOSSECTOMY and MANDIBULECTOMY

Unit 5 (12 hrs)

1. Effect of partial and Total Glossectomy on speech
2. Characteristics of Glossectomy speech
3. Rehabilitation of speech
4. Prosthetic fitting, design, assessment
5. Dysphagia specific to glossectomy and mandibulectomy: assessment and rehabilitation

LIST OF BOOKS

Compulsory Reading:

1) Mc. Williams, B.J., Morris, H.L. and Shelton, R.L. (1984).Cleft Palate Speech (1st Edition). Philadelphia: B.C. Decker Inc.
2) Spriesterbach, D. (1968). Cleft palate and Communication. Academic Press, New York

Additional / Optional Reading:

3) Grunwell (1993). Analysis of Cleft palate speech, (Ed.) Whurr publisher. London
4) Kernahan, D.A. and Rosenstein, S.W. (1990). Cleft, Lip and Palate – A System of Management. Maryland (USA): Williams and Wilkins.
5) Appleton, J. and Machin, J. (1995). Working with Oral Cancer. UK: Winslow.

B 3.3 DIAGNOSTIC AUDIOLOGY: Part 1

(Total = 64 hrs)

Unit 1: (12 hrs)

Introduction to diagnostic audiology

a) Need for test battery approach in auditory diagnosis and integration of results of audiological tests.

b) Indications for administering audiological tests to identify:

- Cochlear pathology
- Retrocochlear pathology
- Functional hearing loss
- Central auditory processing disorders

Unit 2 (12 hrs)

Tests to differentiate between cochlear and retrocochlear pathology

a) ABLB, MLB

b) SISI

c) Tests for adaptation

d) Bekesy Audiometry

e) Brief tone audiometry

f) PIPB function

Unit 3 (12 hrs)

Tests to detect pseudohypoacusis

a) Pure tone tests including tone in noise test, Stenger test

b) Speech tests including yes & no

c) Lombard test, Stenger test, lip-reading test, Doefler-Stewert test.

d) Identification of functional hearing loss in children

Unit 4 (16 hrs)

Tests to detect central Auditory Disorders

a) Monoaural low redundancy tests

- Filtered speech tests
- Time compressed speech test
- Speech-in-noise test
- SSI with ICM
- Other monaural low redundancy tests

b) Dichotic speech tests

- Dichotic digit test
- Staggered spondaic word test
- Dichotic CV test
- SSI with CCM
- Competing sentence test
- Other dichotic speech tests

c) Binaural interaction tests

- RASP

• BFT (Binaural Fusion Test)
• MLD
• Other binaural interaction tests
d) Temporal ordering tasks
• Pitch pattern test
• Duration pattern tests
• Other temporal ordering tests

Unit 5 (12 hrs)
a) Variables influencing central auditory assessment
• Procedural variables
• Subject variables
b) Test findings in subjects with central auditory disorders
• Brainstem lesion
• Cortical and hemispheric lesion
• Interhemispheric dysfunction
• CAPD in children
• CAPD in elderly

LIST OF BOOKS
Compulsory Reading:
1. Jerger, J. (1963). Modern developments in Audiology, New York: Academic Press.
2. Jerger, J. (1987). Diagnostic Audiology: Historical Perspectives, Ear and Hearing, 8 7s-12s
3. Katz, J. et al (Ed.) (1994). Handbook of Clinical Audiology, Baltimore: Williams and Wilkins.
4. Musiek, F.E. and Rintlemann, W.F. (1999). Contemporary Perspective in Hearing Assessment. USA: Allyn & Bacon.
5. Silman S. and Silverman C.A. (1991). Auditory Diagnosis Principles and Application. New York: Academic Press, Inc.

Additional Reading:
1. Martin, F.N (1994), Introduction to Audiology, New Jersey: Prentice Hall.
2. Rupp, Stockdell (1980). Speech Protocols in Audiology, New York: Grune &Stratton.
3. Keith, R.M. (Ed.). (1981). Central Auditory Dysfunction. New York: Grune & Stratton.
4. Musiek, and Baran, J.A. (1987). Central Auditory Assessment: Thirty years of challenge and change. Ear and Hearing 3, 225-355.
5. Pinherio, H.L. Kusiek, F.E. (Eds) (1985). Assessment of Central Auditory Dysfunction Foundations and Correlates. Baltimore: Williams and Wilkins.
6. Willsford J.A. (1987), Handbook of Central Auditory Processing Disorders in Children. Drando, Grune & Stratton.
7. Feldman, A.S., & Willber, L.A. (Eds), (1976), Acoustic Impedance, Immittance: Measurement of Middle Ear Function, Baltimore: Williams & Wilkins.
8. Popelka, B.R. (Ed) (1981). Hearing Assessment with acoustic reflex. New York: Grune and Stratton.
9. Jacobson, J.T. (Ed) (1985). Auditory Brain Stem Response. Taylor and Francis, London.

B 3.4 AMPLIFICATION DEVICES FOR PERSONS WITH HEARING IMPAIRMENT

(Total = 64 hrs)

Unit 1 (6 hrs)

a) Historical development of hearing aids

Non-electrical hearing aids

Electric hearing aids

b) Basic elements of hearing aids: Microphone, Amplifier, Receiver, Cords, Batteries

Unit 2 (12 hrs)

Types of Hearing aid

a) Directional hearing aids, modular hearing aids

Routing of signals, head shadow / baffle / diffraction effects, Output limiting: Peak clipping, compression, extended low frequency amplification, frequency transposition (Bone anchored hearing aid, Master Hearing aids)

b) Recent advances in hearing aids

- Signal processing in hearing aids – BILL, TILL, PILL
- Programmable and digital hearing aids
- Signal enhancing technology

Unit 3 (12 hrs)

Electroacoustic Characteristics & measurements for hearing aids

a) Instrumentation & Analysis of Electroacoustic characteristics of all types of hearing aids.

b) Measurement of standard & specification of hearing aids according to ISI, IEC and ANSI

c) Interpretation of the analysis

Unit 4 (20 hrs)

Hearing Aid selection

a) Pre-selection factors: Ear to be fitted, monoaural vs. binaural hearing aids, type of receiver, style of hearing aid.

b) Prescriptive & comparative procedure

c) Functional gain & insertion gain methods: Instrumentation, prescription formulae, Articulation Index, Speech-spectrum (banana), merit & demerits of each.

d) Hearing aids for conductive hearing loss, congenital malformation, chronic middle ear disorders

e) Hearing aids for infants/children/multiple handicapped

f) Hearing aids for adults & geriatrics: recruiting ears, poor word recognition scores (WRS)

g) Hearing aids for the sightless

h) Procuring hearing aids under various schemes of the Government of India /State

LIST OF BOOKS

Compulsory Reading:

1. Skinner HW (1988), Hearing aid evaluation, Prentice Hall, Englewood Cliffs, HJ.

2. Pollack M (1980) Amplification for the hearing impaired. Grune and Stratton, NY.

Additional Reading:

1. Loavenbruck All and Madell IR (1981), Hearing aid dispensing for audiologists: A guide for clinical service. New York: Grune and Stratton.
2. Bess et al (1981). Amplification in Education, Alexander Graham Bell Association for the Deaf, Washington.
3. Hull, R.H. (1982). Rehabilitation Audiology, New York: Grune and Stratton.
4. Donnelly K (1974), Interpreting hearing aid technology, CC, Thomas, Springfield.
5. Markides A (1977) Binaural hearing aids, Academic Press Inc., London.
6. Hodgson HR and Skinner (PH) (1977, 1981), Hearing aid Assessment and use in audiologic habilitation, Williams and Wilkins, Baltimore.
7. Cooper (1991), Practical aspects of Audiology: Cochlear implants: A practice guide. Whurr Publisher, London.
8. Mueller HG, Hawkins DB., Northern JL. (1992), Probe microphone measurements: Hearing aid selection and assessment, Singular publishing group. Inc., California.
9. ANSI & IEC Specifications

B 3.5 DEVELOPMENTAL PSYCHOLOGY

(Total = 30 hrs)

Unit 1 (6 hrs)

Introduction- general nature of subject matter of psychology, aims and methods of study, Principles of developmental psychology

Unit 2 (2 hrs)

Origins of behavior, phylogenetic and ontogenetic development of behavior, mechanism of inheritance, genes and behavior

Unit 3 (6 hrs)

Cognitive development: Paiget's theory, the higher metal processes, evolution of growth of intelligence, growth from early childhood to adolescence. Cognitive growth, processes view, information processing

Unit 4 (5 hrs)

Emotional Development –early beginnings of emotions in infants, development of emotional patterns, teaching emotional control in childhood, problem of emotions in adoloscences, age changes

Unit 5 (6 hrs)

Social development – Eriksons theory, Moral development – Kohlbergs theory

Unit 6 (5 hrs)

Play development, types of play, age appropriate play, factors affecting play, play as a therapeutic tool

LIST OF BOOKS

Compulsory Reading:

1) Hurlock (1970).Childs growth and development 51Ed. New Delhi: McGraw Hill.
2) Papalia, D.E. (1975). A child's world: Infancy through adolescence. New York: McGraw Hill.
3) Solberg, P.A. &Zubek, J.P. (1954).Human development. New York: Hill Book Company.

B 3.6 CRITICAL THINKING

(Total = 30 hrs)

Unit 1 (10 hrs)

How our thinking can go wrong?
What is critical thinking?
Characteristics of a critical thinker
Asking the right questions
Speed bumps
Issue and Conclusion

Unit 2 (10 hrs)

What are the reasons?
Ambiguous words and phrases
Value & descriptive assumptions
Fallacies in reasoning

Unit 3 (10 hrs)

How good is the evidence?
Rival causes
Are the statistics deceptive?
What significant information is omitted?
What conclusions are possible?
Science and pseudoscience
Evidence-based practice

LIST OF BOOKS

Compulsory Reading:

1) Browne, M. N., & Keeley, S. M. (2015). Asking the right questions: A guide to critical thinking (11th ed). Upper Saddle River, NJ: Pearson Education.

Additional/ Optional reading:

2) Finn, P., Bothe, A. E., & Bramlett, R. (2005). Science and pseudoscience in communication disorders: Criteria and applications. American Journal of Speech-Language Pathology, 14, 172-186.
3) Paul, R., & Elder, L. (2006). The miniature guide to critical thinking: Concepts and tools. Dillon Beach, CA: The Foundation for Critical Thinking.

B 3.7 CLINICAL PRACTICUM (a) Speech Language Pathology

At the end of Semester III, the student should be able to carry out the following –

1. Carry out informal and formal assessment procedures for the following aspects of speech and language (from a normal child sample)

i) Pre-linguistic skills

Non-verbal communication

Child directed speech

ii) Semantics

Syntax and morphology

Pragmatics

iii) Phonological process and its analysis

Speech intelligibility

Transcription of the sample in IPA should be done.

2. Use scales / tests for evaluation and treatment of Childhood communication disorders, Articulation and Phonological Disorders, Maxillofacial anomalies:

- Northwest Syntax Screening Test
- Bankson's Language Screening Test
- Test for Examining Expressive Morphology
- Autistic Behaviour Composite Checklist and Profile
- Linguistic Profile Test
- Tests for learning Disability
- Screening Test for Developmental Apraxia of Speech
- Articulation assessment tests in different Indian languages
- Other Indian tests and materials available

3.

i) Perceptual analysis of 5 normal and 5 abnormal articulation samples

ii) Analysis and marking of cleft

iii) Nasalence measurements in normal and cleft palate speech

4. Planning and executing therapy for a minimum of 5 clients (including children and adults with articulation disorders, cleft palate, glossectomy, mandibulectomy) for approximately 5 sessions each and preparation of the following:

- Carry out baseline evaluation
- Preparation of pre therapy reports
- Provide guidelines for home-based intervention in the form of home training programs/modules for the above mentioned disorders

Making appropriate referrals and preparing sample referral letters to various professionals connected with the above mentioned disorders

Know various centers available for rehabilitation (local, national, international)

5. Counseling parents of children and adults with articulation disorders, cleft lip and palate, glossectomy and mandibulectomy

6. Maintaining audio samples used for the practical analysis

7. Maintaining clinical dairy

B 3.7 CLINICAL PRACTICUM (b) Audiology

At the end of Semester III, the student should be exposed to and be able to carry out the following:
1. Be familiar with instrumentation for speech audiometry, immittance audiometry, sound field-testing.
2. Carryout complete pure tone audiometry (with AC/BC, unmasked/masked), interpretation of audiograms, identifying indicators for special/further diagnostic testing, writing case review (25 cases)
3. Speech Audiometry: Be familiar with speech test material in at least two Indian languages, master live voice presentation and recorded test presentation, administer SAT, SRT, SIS, MCL, UCL, PI-PB function test.
4. Collect speech audiometry test materials in Indian languages.
5. Carryout speech audiometry on 10 normal subjects, and 20 cases with conductive hearing loss, sensorineural hearing loss and functional hearing loss. Interpretation of speech audiometry results.
6. Carryout holistic audiological assessment for differential diagnosis (Cochlear & Retro cochlear):
Routine pure tone & speech audiometry
Administering special tests using pure tone: Tone Decay Test, STAT, SISI, ABLB,
MLB, SPAR, Test for functional hearing loss.

Educational Audiology
1. Note the speech and language characteristics of those with hearing impairment
2. Management of individuals with post-lingual hearing impairment
3. Role-play activities for teaching language to the hearing impaired.
4. Prepare schedules for educational placement of 5 hearing impaired children having different hearing capacities.
5. Counsel parents regarding educational placement of the hearing impaired.

ISL 1. INDIAN SIGN LANGUAGE - 1

(Total = 30 hrs)

Theory

Introduction to Deafness and Sign Language

Unit 1: The Nature of sing language

- 1.1 Sign language is NOT the same all over the world.
- 1.2 Sign language does NOT lack grammar.
- 1.3 Sign language is NOT dependent on spoken language.
- 1.4 Sign language is NOT a “language of the hands” only.
- 1.5 Sign language has not been invented by hearing people to help deaf people.
- 1.6 No sing language are better than any other sing language.
- 1.7 Sign codes for spoken languages (Signed English, Signed Hindi etc.) are NOT better than Indian Sing Language.

Practicals

UNIT	GRAMMAR	• TOPICS	HOURS
1	Special statements	Greetings Describing people and objects (Adjectival predicates) Pronouns	15

SEMESTER IV

B.4.1 VOICE AND LARYNGECTOMY

(Total = 64 hrs)

Unit 1 (14 hrs)

1. Characteristics of normal voice: Physiological, acoustical and aerodynamic correlates
2. Development: Birth to senescence; including age-related changes
3. Theories of phonation
4. Classification of abnormal voice
5. Voice disorders in other conditions:

• Voice disorders related to resonatory problems
• Voice problems in conditions like Cerebral palsy, Hearing impaired, mentally retarded, Cleft lip and palate
• Voice problems in Endocrine disorders

Unit 2 (12 hrs)

1. Etiology, incidence, prevalence, signs and symptoms of:

• Organic voice disorders: Laryngeal cancer also to be included here
• Non-organic voice disorders: eg: Functional disorders (Psychosomatic-Functional aphonia and physiological- voice abuse)
• Congenital voice disorders
• Neurological voice disorders

Unit 3 (12 hrs)

1. Evaluative procedures and Instrumentation for:

• Invasive procedures – endoscopic procedures
• Non-invasive (Acoustic, perceptual, aerodynamic, Electro Glotto Gram, Inverse filtering procedures)

2. Comparison of normal and abnormal voice patterns based on the above procedures

Unit 4 (14 hrs)

Laryngectomy:

- Types and characteristics of laryngectomy surgery
- Assessment of a laryngectomee and associated problems
- Management of a laryngectomee: a) Esophageal speech: anatomy, candidacy, different types of air intake procedures, speech characteristics of esophageal speech; b) Tracheo-esophageal speech: anatomy, candidacy, different types of TEP, fitting of prosthesis, speech characteristics, complications in TEP; c) Artificial larynx: different types, selection of artificial larynx, speech characteristics; d) Pharyngeal speech, buccal speech, ASAI speech, gastric speech; e) Pre and postoperative counseling

Unit 5 (12 hrs)

1. Medical/Surgical procedures in the treatment of voice disorders
2. Voice therapy – various techniques

3. Professional voice users: Definition, types, characteristics, importance of vocal hygiene and professional voice care

LIST OF BOOKS

Compulsory Reading:

1) Boone, D.R. & McFarlane, S. C (1994): The Voice and Voice Therapy. (Fifth Ed.). Englewood Cliffs, Prentice-Hall, Inc. New Jersy.
2) Prater, R.J. and Swift, R.W. (1984): Manual of Voice Therapy. Little, Brown and Co, Boston.
3) Andrews . M.L. (1995): Manual of Voice treatment, Singular publishing group, San Diego.
4) Doyle, P C (1994) Foundation of voice and speech rehabilitation following laryngeal cancer. Singular publishing group. San Diego.

Additional/Optional Reading:

5) Brown. W.M.s. and others (1996) (ed): Organic voice disorders. Singular publishing group, Sandiego.
6) Joseph, C Stemple Leble, E Glaze, Bernick K Gerdeman. Clincial voice pathology. Theory & Management (II Edition)
7) Aronson, A.E. (1990): Clinical Voice Disorders, New York: Thieme, Inc.
8) Greene, M.C.L. and Mathieson, L. (1989): The Voice and Its Disorders. Whurr publications, London.
9) Case, J.L. (1991): Clinical Management of Voice Disorders, Pro-Ed, Austin.
10) Fawcus, M. (Ed.) (1991): Voice Disorders and Their Management. Singular Publishing. Group. San Diego
11) Salmon, S.J. and Mount, K.H. (Eds.) (1991): Alaryngeal Speech Rehabilitation. Prof- Ed. Austin.
12) Keith, R L & Darley (III Edition) Laryngectomee rehabilitation. Pro. Ed.Austin

B 4.2 MOTOR SPEECH DISORDERS IN CHILDREN

(Total = 64 hrs)

Unit 1 (12 hrs)

1. Introduction to neuromotor organization and sensorimotor control of speech

• Motor areas in cerebral cortex, motor control by subcortical structures, brainstem, cerebellum and spinal cord.
• Central nervous system and peripheral nervous system in speech motor control.
• Centrifugal pathways and motor control
• Neuromuscular organization and control
• Sensorimotor integration
• Introduction to motor speech disorders in children- Dysarthria and Developmental apraxia of speech

Unit 2 (12hrs)

1. Cerebral palsy

• Definition, causes and classification
• Neuromuscular development in normals and children with cerebral palsy
• Reflex profile
• Associated problems
• Speech and language problems of children with cerebral palsy
• Assessment of speech in children with cerebral palsy- objective and subjective methods
• Differential diagnosis of cerebral palsy
• Management: Introduction to different approaches to neuromuscular education (Bobath, Phelps and the others); Speech rehabiliatation in cerebral palsy- Verbal approaches: vegetative exercises, oral sensorimotor facilitation techniques, compensatory techniques- correction of respiratory, phonatory, resonatory and articulatory errors; Team approach to rehabilitation;
Neurosurgical techniques for cerebral palsy

Unit 3 (12 hrs)

1. Different types of Cerebral palsy:

• Disorders of muscle tone: Spasticity, rigidity, flaccidity, atonia
• Disorders of movement: Hyperkinesias and dyskinesias- Ballismus, tremor, tic disorder, myoclons, athetosis, chorea, dystonia, hypokinesias
• Disorders of coordination- Ataxia

2. Syndromes with motor speech disorders- Examples:

• Juvenile progressive bulbar palsy
• Congenital supranuclear palsy
• Guillain- Barre syndrome
• Duchenne muscular dystrophy

Unit 4 (14 hrs)

1. Apraxia of speech in children or developmental apraxia of speech

• Definition

• Description: verbal and non-verbal apraxia
• Differential diagnosis- dysarthria and other developmental disorders
• Management of developmental apraxia of speech- Facilitation techniques for oral motor movements, speech therapy techniques, generalization of speech

Unit 5 (14 hrs)

1. Application of augmentative and alternative (AAC) communication methods in developmental dysarthrias and developmental apraxia of speech:
• Symbol selection
• Techniques
• Assessment for AAC
• Training communication patterns,
• Effective use of AAC

LIST OF BOOKS

Compulsory Reading:

1) Crary, M.A. (1993). Developmental Motor Speech Disorders. Singular Publishing group Inc. Whurr publishers. San Diego. California
2) Caruso, F. J. and Strand, E. A. (1999). Clinical Management of Motor Speech Disorders in Children. New York: Thieme.
3) Love, R.J. and Webb, W.G. Butterworth. (1986). Neurology for Speech-Language Pathology. (2^{nd} ed.)

Additional/Optional Reading:

4) Minifie, N.R. Williams Heinemann. (1974). (2nd Ed.) Handling the Young Cerebral Palsied Child at Home. Medical Books.
5) Cogher, L., Savage, E. and Smith, M.T. Cerebral Palsy: The child and the Young Person. (1992). Eds. London: Chapman and Hall Medical.
6) Hardy, J. (1983). Cerebral Palsy. Remediation of Communication Disorder Series by F.N. Martin. Englewood Cliffs, Prentice Hall Inc.
7) Rosenthal. S., Shipp and Lotze. Dysphagia and the child with developmental disabilities.

B 4.3 DIAGNOSTIC AUDIOLOGY: Part 2

(Total = 64 hrs)

Unit 1 (14 hrs)

Immittance evaluation

a) Introduction

b) Principle of immittance evaluation, Instrumentation

c) Tympanometry – tynapnometric peak pressure, Static immittance, gradient/tympanometric width

d) Reflexometry - Ipsilateral and contralateral acoustic reflexes, special tests

e) Clinical application of immittance evaluation

f) Immitance evaluation in the paediatric population

Unit 2 (14 hrs)

Auditory brainstem response

a) Introduction and classification of AEPs including ASSR (80 Hz)

b) Instrumentation

c) Test procedure

d) Factors affecting auditory brainstem responses

e) Interpretation of results and clinical application

f) ASSR, Tone burst ABR

Unit 3 (14 hrs)

Middle and long latency auditory evoked potentials

a) Test procedure for MLR, LLR, MMN, P 300, ASSR (40 Hz)

b) Factors affecting middle, long latency evoked potentials (including MMN & P300)

c) Interpretation of results and clinical application

Unit 4 (10 hrs)

Otoacoustic emissions

a) Introduction and classification of OAEs

b) Instrumentation

c) Measurment of OAE procedure

d) Interpretation of results and clinical application

Unit 5 (12 hrs)

Electronystagmography

a) Introduction and need for electronystagmography

b) Subtests in electronystogmography

c) Interpretation of test results and clinical applications

d) Findings in the paediatric population

Other vestibular tests

a) VEMP

b) EMG

c) Glycerol test etc.

LIST OF BOOKS

Compulsory Reading:

1. Jerger, J. (1963). Modern developments in Audiology, New York: Academic Press.
2. Jerger, J. (1987). Diagnostic Audiology: Historical Perspectives, Ear and Hearing, 8 7s-12s
3. Katz, J. et al (Ed.) (1994). Handbook of Clinical Audiology, Baltimore: Williams and Wilkins.
4. Musiek, F.E. and Rintlemann, W.F. (1999). Contemporary Perspective in Hearing Assessment. USA: Allyn & Bacon.

Additional/Optional Reading:

1. Martin, F.N (1994), Introduction to Audiology, New Jersey: Prentice Hall.
2. Silman S. and Silverman C.A. (1991). Auditory Diagnosis Principles and Application. New York: Academic Press, Inc.
3. Rupp, Stockdell (1980). Speech Protocols in Audiology, New York: Grune & Stratton.
4. Keith, R.M. (Ed.). (1981). Central Auditory Dysfunction. New York: Grune & Stratton.
5. Musiek, and Baran, J.A. (1987). Central Auditory Assessment: Thirty years of challenge and change. Ear and Hearing 3, 225-355.
6. Pinherio, H.L. Kusiek, F.E. (Eds) (1985). Assessment of Central Auditory Dysfunction Foundations and Correlates. Baltimore: Williams and Wilkins.
7. Willsford J.A. (1987), Handbook of Central Auditory Processing Disorders in Children. Drando, Grune & Stratton.
8. Feldman, A.S., & Willber, L.A. (Eds), (1976), Acoustic Impedance, Immittance: Measurement of Middle Ear Function, Baltimore: Williams & Wilkins.

B 4.4 PEDIATRIC AUDIOLOGY

(Total = 64 hrs)

Unit 1 (12 hrs)

a) Development of human auditory system
Basic embryology
Embryology of the auditory system
Relevance of the information with special reference to syndromes
b) Development of auditory behaviour
Prenatal hearing
New born hearing
Auditory development from 0-2 years

Unit 2 (14 hrs)

a) Early identification of hearing loss – need with specific reference to conductive and sensorineural hearing loss.
b) Screening for hearing loss using high risk registers
c) Behavioural screening tests: Stimuli, procedures, recording of response, interpretation of results and validation of results
d) Concept of universal hearing screening

Unit 3 (12 hrs)

a) Objective screening tests: Immittance, Evoked potentials, OAE,
b) School Screening – Objective: Screening for hearing sensitivity, screening for middle ear effusion. Need, criteria, instrumentation.
c) Individual and group screening / Mass media screening tests
d) Importance of follow-up.

Unit 4 (16 hrs)

a) Hearing testing in neonates and infants:
Behavioural Observation Audiometry (BOA) Conditioning techniques including CORA, VRA and its modifications, TROCA, Play audiometry.
b) Speech Audiometry in children
Tests & material used to obtain:
Speech Detection Threshold (SDT)
Speech Recognition Threshold (SRT)
Speech recognition tests including VASC, WIPI, NuChip, Glendonald Auditory Screening Procedure (GASP), Early Speech Perception Test (EST), Speech tests developed in India.
Factors affecting speech audiometry results in children
BC speech audiometry

Unit 5 (10 hrs)

Functional hearing loss in children
Signs/symptoms
Tests
b) Central Auditory Processing Disorders in children

Signs/symptoms
Screening tests

LIST OF BOOKS

Compulsory Reading:

1. Northern, J.L. and Downs, M.P. (1991). Hearing in children. 3rd Ed. Baltimore: Williams and Wilkins.

Additional Reading:

2. Davis, J.H., and Hardick, E.J. (1981). Rehabilitative Audiology for children and adults, New York: John Wiley and Sons.
3. Erber, N.P. (1982), Auditory Training, Washington: A.G. Bell Association for deaf.
4. Fulton, R.L. and Lloyd, L.L. (1975), Auditory assessment of the difficult to test, Baltimore: Williams and Wilkins, Co.
5. Gerber, S.E. (1982). Audiometry in infancy. New York: Grune and Stratton.
6. Gerber, S.E., and Mencher., S.T. (1978). Early diagnosis of hearing loss, New York, Grune and Stratton.
7. Ling, D. (1978). Speech and hearing impaired child. Washington: Alexander Graham Bell Association for the deaf.
8. Martin, F.N. (1978). Paediatric Audiology, New Jersey: Prentice Hall.
9. Sanders, D. A. (1993). Management of hearing handicap: Infants to elderly. 3rd Ed. New Jersey: Prentice Hall.

B 4.5 CLINICAL PSYCHOLOGY

(Total = 30 hrs)

Unit 1 (6 hrs)

Modern history of Clinical psychology – its current status and scope as a specialty in health sciences- role of children in clinical psychology in speech and hearing disorders

Unit 2 (2 hrs)

Concepts of normality and abnormality, models of mental disorders- criteria
Unconscious processes – structure

Unit 3 (2 hrs)

Unconscious processes- structure of mind, Freudian and neo Freudian contributions

Unit 4 (6 hrs)

Methodology in clinical psychology – case history, clinical interviewing, clinical observation, types of psychological assessment, global clinical analysis, intervention planning, health service delivery, consideration for speech and hearing disorders

Unit 5 (6 hrs)

Classification of abnormal behavior, rationale, existing system, overview of organic (lesion) and function (psychotic, neurotic, personality childhood, adjustment and other behavioral) disorders. Advantages of viewing speech and hearing disorders within the framework of health disorders.

Unit 6 (4 hrs)

Intellectual disability- various forms of mental age, and I.Q as related to assessment of intelligence- grades of mental subnormality, related disorders of speech and sensory functions, clinical types among mentally subnormal and possible causes, scope for improvement by application of behavioral science.

Unit 7 (4 hrs)

Treatment, introduction, physical, psychological methods, psychotherapy, its types and approaches to behavioral therapy, family therapy child/individual and parental counseling

LIST OF BOOKS

Compulsory Reading:

1) Bellack & Hersen (1980). Introduction to clinical psychology. New York: Oxford University
2) Bemstein, D.A. &Nietzel, M.T. (1980).Introduction to clinical psychology. New York: McGraw-Hill Book Co.

B 4.6 PAEDIATRICS

(Total = 30 hrs)

Unit 1 (6 hrs)

Growth and development -basic concepts, growth from birth to puberty, growth during adolescent period

Unit 2 (6 hrs)

Early identification of perinatal pediatric disorders leading to speech and hearing impairment

Unit 3 (6 hrs)

Nutritional disorders in children -protein energy malnutrition, water soluble vitamins, fat soluble vitamins, trace elements.

Unit 4 (6 hrs)

Childhood disabilities -developmental diseases, cerebral palsy, attention deficit hyperactivity disorder, learning disability, childhood autism, early detection therapy for developmental delay

Unit 5 (6 hrs)

Genetic disorders -genetic counseling, mendellian disorders, chromosomal disorders, nontraditional modes of inheritance, management of genetic disorders, gene therapy, human genome mapping project (HGMP)

LIST OF BOOKS

Compulsory Reading:

1) Lloyd, L.L. (1976). Communication assessment and intervention strategies.Chapter II. London: University Park Press
2) MacMohan, B., Pugu, T.F. &Ipson, J: (1960). Epidemiologic methods. Boston: Little Brown Co.
3) Pandey, R.S. &Advani, L. (1995).Perspectives ind.isability and rehabilitation. NewDelhi: Vikas Publishing House Pvt. Ltd.
4) Paul, J.R. (Ed) (1966). Clinical epidemiology.2nd Edn. Chicago: University of Chicago Press.
5) Rosetti, L.M. (1996). Communication intervention: Birth to three. Chapter I. San Diego: Singular Group Inc.
6) Travis, L.E. (1971). Handbook of speech pathology and audiology.'Chapter 24. New Jersey: Prentice Hall.

B 4.7 CLINICAL PRACTICUM (a) Speech – Language Pathology

At the end of Semester **IV**, the student should be able to carry out the following –
Carry out informal and formal assessment procedures for the following aspects of speech in 10 clients with voice disorders, laryngectomy, cerebral palsy and developmental apraxia of speech
i) Perceptual analysis of pitch, loudness and quality of voice
ii) Instrumental analysis of voice – Fo and related measures, amplitude and related measures, CTAS, EGG, maximum phonation duration, s/z ratio, vital capacity, mean airflow rate, analysis and professional voice
iii) Diagnosis of voice disorders
iv) Proformae for cerebral palsy, diagnosis of cerebral palsy
v) Analysis of developmental apraxia of speech
vi) Planning, writing and executing therapy in 5 cases with voice disorders, laryngectomy, cerebral palsy and developmental apraxia of speech
vii) Counseling in the above speech disorders
viii) Record maintenance

B 4.7 CLINICAL PARACTICUM (b) Audiology

At the end of Semester **III & IV**, the student should be exposed to and be able to carry out the following:
1. Be familiar with instrumentation for speech audiometry, immittance audiometry, sound field-testing.
2. Carryout complete pure tone audiometry (with AC/BC, unmasked/masked), interpretation of audiograms, identifying indicators for special/further diagnostic testing, writing case review (25 cases)
3. Speech Audiometry: Be familiar with speech test material in at least two Indian languages, master live voice presentation and recorded test presentation, administer SAT, SRT, SIS, MCL, UCL, PI-PB function test.
4. Collect speech audiometry test materials in Indian languages.
5. Carryout speech audiometry on 10 normal subjects, and 20 cases with conductive hearing loss, sensorineural hearing loss and functional hearing loss. Interpretation of speech audiometry results
6. Carryout holistic audiological assessment for differential diagnosis (Cochlear & Retro cochlear)
7. Routine pure tone & speech audiometry
8. Administering special tests using pure tone: Tone Decay Test, STAT, SISI, ABLB, MLB, SPAR, Tests for functional hearing loss.
9. Carryout Immittance Audiometry (minimum of 5 cases) – PVT, Tympanometry, Acoustic Reflex testing (ipsi & contra). Interpret the findings taking into consideration the ENT reports.
10. Carry out Auditory Brainstem Response (ABR) & Oto-Acoustic Emissions (OAE) –
• Preparation of the patient
• Informing the patient/caregiver with respect to the procedure
• Electrode montage
• Conduct the procedure with respect to test protocol (5 cases each)
• BC-ABR, Tone burst ABR

ISL 2. INDIAN SIGN LANGUAGE - 2

(Total = 30 hrs)

Theory

Unit 1: Perspectives on sing language usage

- Effective communication with deaf people: Becoming a good signer
- Deafness and society: Using sign language for inclusion in society

Practicals

UNIT	GRAMMAR	• TOPICS	HOURS
1	Simple with question words	Family and relations Common objects (clothing, household, etc) Plants	12 hours
2	Questions with question words	Interrogatives Places People and professions Actions	12 hours

SEMESTER V

B 5.1 FLUENCY AND ITS DISORDERS

(Total = 64 hrs)

Unit 1 (10 hrs)

1. Fluency: Definition, disfluencies and dysfluencies, review of development of fluency, factors influencing the development
2. Definitions of intonation, stress and rhythm- Development of intonation, rhythm, stress – their implications to therapy
3. Measures of fluency and other prosodic aspects

Unit 2 (12 hrs)

1. Stuttering: definition, nature, incidence and prevalence
2. Normal non fluency; primary stuttering; secondary stuttering
3. Development of stuttering
4. Cluttering and neurogenic stuttering

Unit 3 (12 hrs)

Theories of stuttering: organic vs. functional; cerebral dominance; diagnosogenic and learning theories; demand-capacity model

Unit 4 (14 hrs)

1. Assessment of stuttering: Clinical observation, subjective and objective assessment, administration of tests, recording, transcription, analysis and diagnosis.
2. Associated problems: speech and language, psychological etc.
3. Differential diagnosis of developmental stuttering, neurogenic stuttering, cluttering, normal non fluency, spasmodic dysphonia

Unit 5 (16 hrs)

1. Prevention: specific issues in children and adults including management of stress and anxiety.
2. Therapy; rationale; prolongation; shadowing; habit rehearsal technique, DAF, masking, shock therapy, desensitization, timeout, airflow and modified airflow technique; sequence of therapy procedures
3. MIDVAS
4. Transfer and maintenance
5. Measurement of progress; naturalness rating
6. Relapse and recovery

LIST OF BOOKS

Compulsory Reading:

1) Curlee and Perkins (Ed.). (1985): Nature and treatment of stuttering. Taylor and Francis, London.
2) Silverman, F.H. (1992). Stuttering and other fluency disorders. Prentice Hall, Inglewood Cliffs.
3) Peter and Guitar (1991). Stuttering- An integrated approach to its nature and treatment

Additional/Optional Reading:

4) Bloodstein, O. (1993): Stuttering. Allyn and Bacon, Boston.
5) Fawcus, M. (1995): Stuttering. Whurr Publishers, London.
6) Mark Onslow (1996) Behavioural management of stuttering. Singular Publishing Group Inc.

B 5.2 MOTOR SPEECH DISORDERS IN ADULTS

(Total = 64 hrs)

Unit 1 (16 hrs)

1. Definition and classification of dysarthria in adults.
2. Types of dysarthria in adults.
3. Neurogenic disorders learning to dysarthria in adults:

• Vascular disorders – dysarthria following strokes, CVA, cranial nerve palsies and peripheral nerve palsies.
• Infection condition of the nervous system – eg. Meningitis, polyneuritis and neuro syphilis.
• Traumatic conditions – Traumatic brain injury and dysarthria
• Toxic conditions – dysarthria due to exogenic and endogenic causes.
• Degenerative and demyelinating conditions – multiple sclerosis, Parkinson's disease, motor neuron diseases, Amyotrophic lateral sclerosis.
• Genetic conditions – Huntington's chorea, Guillian – Barre syndrome.
• Others leading to dysarthria – Anoxic conditions, metabolic conditions, idiopathic conditions and neoplasm.

Unit 2 (12 hrs)

1. Assessment of dysarthria:

• Instrumental analysis: Advantages and disadvantages of instrumental analysis of speech in dysarthria.
• Physiological and Electrophysiological methods
• Acoustics
• Perceptual analysis – measures, standard tests and methods, speech intelligibility assessment scales, advantages and disadvantages of perceptual analysis of speech in dysarthria.

2. Differential diagnosis of dysarthria from functional articulation disorders, apraxia of speech, aphasia and allied disorders.

Unit 3 (12 hrs)

1. Management of dysarthria:

• Medical, surgical and prosthetic approaches
• Speech therapy
 Facilitatory approaches: Vegetative exercises, Oral sensori motor facilitation techniques
 Compensatory approaches – correction of respiratory, phonatory, articulatory and prosodic errors.
 Strategies to improve intelligibility of speech.

Unit 4 (12 hrs)

1. Apraxia of speech in adults

• Definition of verbal and nonverbal apraxia of speech
• Different types, characteristics and classification
• Assessment of apraxia of speech – standard tests and scales, subjective methods and protocols
• Management of apraxia of speech – different approaches
• Improving intelligibility of speech.

Unit 5 (12 hrs)

1. Dysphagia:
• Definition
• Neuro Physiology of swallow in children and adults
• Phases of normal swallow
• Etiology of swallowing disorders in children and adults
• Assessment and Intervention – Specific management techniques, Medical and Surgical issues in dysphagia.

LIST OF BOOKS

Compulsory Reading:

1) Motor Speech disorders - A Treatment guide. (1991). Dworkin, P.J. St. Louis: Mosby Year Book. Inc.
2) Motor Speech Disorders: Substrates, Differential diagnosis and Management. (1995). Duffy, J. R. St. Louis: Mosby.

Additional/Optional Reading

3) Working with Swallowing Disorders. Langley. J. U.K.: Winslow
4) Acquired Speech and Language disorders - A Neuroanatomical and Functional Neurological Approach. (1994). Murdoch, B.E. London: Chapman and Hall.
5) Neurology for Speech-Language Pathology. (1986). (2nd ed.) Love, R.J. and Webb, W.G. Butterworth

B 5.3 REHABILATIVE AUDIOLOGY

(Total = 64 hrs)

Unit 1 (10 hrs)

1. Speech reading
(a) Definitions
(b) Need
(c) Visibility of speech sounds – audio visual perception vs. visual perception
(d) Visual perception of speech by the hard of hearing
(e) Tests for speech reading ability, including Indian tests
(f) Speech reading activities
2. Factors influencing speech reading
(a) Methods of training: analytical vs. synthetic; (including speech tracking)
(b) Individual and group training

Unit 2 (16 hrs)

1. Auditory learning
(a) Definition and historical background
(b) Role of audition in speech and language development in normal children and its application in education of the hearing impaired.
(c) Factors in auditory training: motivation of the case, intelligence, age, knowledge of progress, etc.
(d) Auditory Verbal Therapy
(e) Methods of auditory training
(f) Auditory training activities
(g) Communicative strategies
(h) Individual vs. group auditory training

Unit 3 (10 hrs)

Management of hearing impaired individuals with special needs
(a) Management of multiple handicapped hearing impaired children (MHHI)
(b) Management of children with central auditory processing problems
(c) Rehabilitation of hearing impaired – elderly population

Unit 4 (12 hrs)

Assistive Listening Devices (ALDs)
- Classification based on auditory, visual & tactile stimulation
- Classification based on alerting devices Vs devices for speech perception.
- Selection of ALDs.

Unit 5 (16 hrs)

1. Implantable Devices
- Middle Ear Implants and BAHA (Bone Anchored Hearing Aid)
- Cochlear Implants

- Brainstem Implants Components, Candidacy, Advantages and Complications of the same.
2. Utility of technology/devices in the management of tinnitus, hyperacusis.

LIST OF BOOKS

Compulsory Reading:

1) Skinner HW (1988), Hearing aid evaluation, Prentice Hall, Englewood Cliffs, NJ.
2) Pollack M (1980) Amplification for the hearing impaired. Grune and Stratton: NY.
3) Clark, G.M., Cowan, R.S.C. & Dowell, R.C. (1997). Cochlear Implantation for Infants & Children: Advances. Singular Publishing Group Inc.

Additional Reading:

4) Loavenbruck All and Madell IR (1981), Hearing aid dispensing for audiologists: A guide for clinical service. New York: Grune and Stratton.
5) Bess et al (1981). Amplification in Education, Alexander Graham Bell Association for the Deaf, Washington.
6) Hull, R.H. (1982). Rehabilitation Audiology, New York: Grune and Stratton.
7) Donnelly K (1974), Interpreting hearing aid technology, CC, Thomas, Springfield.
8) Markides A (1977) Binaural hearing aids, Academic Press Inc., London.
9) Hodgson HR and Skinner (PH) (1977, 1981), Hearing aid Assessment and use in audiologic habilitation, Williams and Wilkins, Baltimore.
10) Cooper (1991), Practical aspects of Audiology: Cochlear implants: A practice guide. Whurr Publisher, London.
11) Mueller HG, Hawkins DB., Northern JL. (1992), Probe microphone measurements: Hearing aid selection and assessment, Singular publishing group. Inc., California.
12) BIS, ANSI & IEC Specifications

B 5.4 PROFESSIONAL PRACTICES IN SPEECH AND HEARING

(Total = 64 hrs)

Unit 1 (14 hrs)

1. Epidemiology of speech, language and hearing disorders
2. Environmental, Social, Economic implications and preventive education
3. Levels of prevention: Primary, Secondary, Tertiary
4. Survey, prevalence, Incidence and its implication in planning
5. Health promotion, specific protection, early diagnosis and treatment of a high risk infant, Disability limitation, Educational and Vocational rehabilitation

Unit 2 (12 hrs)

1. Approaches to service delivery: Institution based, Camp based, Community based and Role of NGOs
2. Review of services in India
3. Integration of Disabled into the community and ICF 2001

Unit 3 (12 hrs)

1. Duties and responsibilities of SLP in various settings
2. Professional ethics for SLPs, Code of Ethics, Right to Education Act, Industrial Employment Act
3. Interacting with allied professional and community health workers

Unit 4 (14 hrs)

1. Planning services for the communication disordered population: Philosophy, planning, establishment of services for communication disorders- infrastructure, budget, staffing, equipment, furniture, policy making, record keeping, proposal writing.
2. Strategies for awareness, public education and information (Camps, Print and audiovisual media, Surveys. Radio broadcasts, street plays).
3. Empowering parents, persons with disabilities and the community; Skill transfer to DHLS, parents; grass-root level workers, teachers and health workers

Unit 5 (12 hrs)

1. Legislative support for rehabilitation- Rehabilitation Council of India Act (1992), Persons With Disability Act (1995), National Trust Act for Autism, CP, MR and Multiple Disabilities (1999), Environmental Act, Consumer Protection Act, Right To Information Act.
2. The professional as a witness; documentation; handling legal issues

LIST OF BOOKS

Compulsory Reading:

1) Baquer, A. & Sharma, A. (1997). Disability: Challenges Vs Responses. CAN publications.
2) Kundu, C.L., Status of Disability in India, (2000 & 2003) Ed. Kundu, C.L., RCI

3) Narsimhan, M.C. & Mukherjee, A.K. (1986). Disability a Continued Challenge: Delhi willey eastern.
4) WHO (2001). International classification of Functioning, Disability and Health. Geneva: WHO
5) Professional Issues in Speech-Language Pathology and Audiology - A Text book. (1994). Lubinski R. and Frattali C. California: Singular Publishing Group

Additional/Optional Reading:

6) Administration and Management of Programs for Young Children. (1995) Shoemaker, C. J. New Jersey: Prentice Hall Inc.
7) Management of Child Development Centres. (1993) Hildebrand, V. (3rd Ed.). MacMillan Publishing Company.

B 5.5 PSYCHOLOGY OF LEARNING

(Total = 30 hrs)

Unit 1 (2 hrs)

Importance of studying psychology of learning – Scope and methods.

Unit 2 (8 hrs)

Principles of classical conditioning – Pavlov and his conditioning experiments. Principles of learning derived from classical conditioning – instrumental or operant conditioning – applications of classical conditioning principles in therapy.

Operant conditioning –origins of operant conditioning theory – original work of Thorndike – Thorndike's laws of learning – operant and respondent behavior as enunciated by Skinner – schedules of reinforcement as given by Skinner. Therapeutic applications

Unit 3 (8 hrs)

Cognitive learning – cognitive approaches in learning – recent models, Tolamn's theory – Gestalt theory – recent development in cognitive theory – applications in therapeutic approaches relation to rational emotive theory by Ellis – correction of cognitive misconceptions – providing insight to the patient

Unit 4 (6 hrs)

Guthre's continguous learning theory – importance of associative learning – therapeutic applications of contiguity theory.

Hull's comprehensive learning theory-drive reduction as the principle of learning, his concept of reinforcement – bringing our various theories of learning under the umbrella

Unit 5 (6hrs)

Applications of principles of learning in diagnostic testing – treatment of clinical syndromes-systematic desensitization –impassive therapy and flooding – token economy, differential reinforcement – negative practice –aversion therapy –assertion therapy – neuropsychological correlates of learning.

LIST OF BOOKS

Compulsory Reading:

1) Bernard, H. W. (1995). Psychology of Learning and Teaching. 2nd Ed. New York: McGraw Hill.
2) Mowrer (1961) Learning theory and behavior. New York: John Wiley
3) Hilgard and Rower. (1975). Theories of Learning, 3rd Ed. New York. Appleton.

B 5.6 PROFESSIONAL VOICE USERS

(Total = 30 hrs)

Unit 1 (8hrs)

Overview

- Anatomy of larynx
- Physiology of phonation
- Age and Voice

Unit 2 (8hrs)

Professional voice users

- Professional voice users- types , Acting voice, Singing voice , voice of call centre people etc
- Pathophysiological changes in different voice disorders

Unit 3 (10hrs)

Assessment and Diagnosis

- Evaluative procedures and Instrumentation for: Invasive procedures – endoscopic procedures , Non-invasive (Acoustic, perceptual, aerodynamic, Electro Glotto Gram, Inverse filtering procedures)
- Perceptual attributes and assessment
- Practical: perceptual evaluation of pathological voices of professional voice users

Unit 4 (4hrs)

Treatment

- Voice therapy techniques for benign vocal fold pathologies
- Phonosurgery

LIST OF BOOKS

Compulsory Reading:

1) Boone, D.R. & McFarlane, S. C (1994): The Voice and Voice Therapy. (Fifth Ed.).
2) Englewood Cliffs, Prentice-Hall, Inc. New Jersy. 2) Prater, R.J. and Swift, R.W. (1984): Manual of Voice Therapy. Little, Brown and Co, Boston.
3) Clinical Measurement of Speech and Voice [1996] Baken, R J California: Singular Publishing Group, Inc.
4) Joseph, C Stemple Leble, E Glaze, Bernick K Gerdeman. Clincial voice pathology. Theory & Management (II Edition)

B 5.7 SCHOOL BASED AUDIOLOGY

(Total = 30 hrs)

Unit 1 (6hrs)

Educational Audiologists

a. Roles & Responsibilities
b. Scope of practice
c. Hearing and ME Screening Programs (Identification Practices)

Unit 2 (6hrs)

Classroom

a. Classroom Acoustics, measurement & Modifications)
b. Classroom Amplification Systems

Unit 3 (6hrs)

Early identification and intervention practices

a. Early Identification: Principles and Practices
b. Hearing conservation at school
a. Strategies for preventing hearing loss
b. Philosophical Views on Deafness
c. Practises in India

Unit 4 (6hrs)

Development of communication skills (6 hours)

a. Auditory Skills in Children who are Hearing Impaired
b. Speech and Language Development in Children who are Hearing Impaired

Unit 5 (6 hrs)

Communication modalities (6 hour)

a. AVT
b. Auditory oral approach
c. Other modes of communication including Manual Modes of Communication, Cued Speech, Total Communication Seeing Essential English (SEE 1) Signing Exact English (SEE 2) American Sign Language the Rochester Method Fingerspelling

LIST OF BOOKS

Compulsory Reading:

1. Sanders, D. A. (1993). Management of Hearing Handicap; Infants to Elderly, 3rd Ed., New Jersey, Prentice Hall.
2. Tucker, I., & Nolan, M. (1984). Educational Audiology. London: Croom Helm.
3. Johnson, C., & Seaton, J. (2012). Educational Audiology Handbook. (2nd ed.) Clifton Park, NY: Delmar.
4. Paul, P. (2009). Language and Deafness. (4th ed.) Sadbury, MA: Jones and Bartlett Publishers.

5. Crandell, C., Smaldino, J., & Flexer, C. (2005). Sound field amplification: Applications to speech perception and classroom acoustics (2nd ed.). Clifton Park, NY: Thompson-Delmar Learning.

Additional/Optional Reading:

6. Hull, R.H. (2001). Aural rehabilitation: Serving children and adults. (4th ed.) San Diego, CA: Singular Thompson Learning.
7. Schwartz, S. (1996). Choices in deafness (2nd ed.). Bethesda, MA: Woodbine House Publishers.
8. Tucker, B. (1997). IDEA advocacy for children who are deaf or hard of hearing: A question and answer book for parents and professionals. Clifton Park, NY: Thompson-Delmar Learning.

B 5.8 EARMOULDS

(Total = 30 hrs)

Unit 1 (6 hrs)

Earmould

- Earmould — definition, Earmoulds and its role
- Qualities of good earmold
- Types of earmolds

Unit 2 (8 hrs)

Earmould impression

- Importance of earmold impression
- Important anatomical landmarks of ear in earmold impression
- Earmold impression procedures (syringe technique)
- Earmold impression materials
- Earmold materials
- Evaluating impression quality

Unit 3 (6 hrs)

Procedure in making earmoulds

Unit 4 (6 hrs)

Earmould modifications and acoustics

- Types of physical modification
- Physical principles of earmold-acoustic effects on various modifications - Vents, dampers, horns
- Tubing effects

Unit 5 (4 hrs)

- Care and maintenance — Counselling
- Trouble shooting & repair of Earmoulds
- Acrylic technology in India / Abroad
- Heat - cure, cold — cure
- Softmould earplugs for swimmers and for protection against, noise/infection

LIST OF BOOKS

Compulsory Reading:

1) V.D Larsen et al. Ed (1974) “Contributing Hearing ~d Performance by Earmould Design” in Auditory and Hearing Prosthetic Research NY: Grune Stratton
2) Robert E. Sandlin (Ed.) (1995) “Hand Book of Hearing Aid Amplification : Theoretical & Technical Consideration”. Vol I, Williams & Wilkins, Baltimore
3) Samuel E. Lybarger. (1978) Chapter on Earmoulds in Jack Katz (Ed.) Handbook of clinical and audiology, 2 Ed. Williams & Wilkins, Baltimore.
4) Schow, R.L. & Nerbonne, M.A (Ed.) (1989). “Introduction to Aural Rehabilitation”. 2 July Ed. Allyn & Bacon.

B 5.9 CLINICAL PRACTICUM (a) Speech – Language Pathology

At the end of Semester V, the student should be able to carry out the following –
a) Analysis of fluency in 2 normal samples and 2 patients with stuttering / cluttering, neurogenic stuttering (percent disfluency), rate of speech, effort, naturalness, various types of disfluencies)
b) Use of SSI, SPI, and fluency tests
c) Assessment of 2 patients with dysarthria / apraxia / dysphagia using tests
d) Planning, writing, and executing therapy with 10 patients with stuttering / cluttering / neurogenic stuttering / dysarthria / apraxia / disphagia
e) Use of AAC in at least 1 patient
f) Counseling patients with the above disorder
g) Record maintenance
h) Presenting a case in clinical conference

B 5.9 CLINICAL PRACTICUM (b) Audiology

At the end of Semester V, the student should be able to carry out the following –
Hearing Aid Trial Postings:
1. Hearing aid trial: pre-selection of hearing aids, styles, EAC, other issues, inspection of ear moulds. Functional gain method (10 children & 10 adults). Concept of speech banana, aided audiogram.
2. Observing Real Ear Insertion Gain measurement (10 cases)
3. Pre-selection based on audiological evaluations (10 cases)
4. Hearing Aid trials:
a. Functional gain, REIG, other methods with monoaural fitting, binaural fitting, Programmable hearing aid – Analog Digital
b. Explaining the benefits of hearing aid to the patient/caregiver
5. Counselling patients/caregivers regarding hearing aids – Care, maintenance, adjustments, tips to caregivers regarding acceptance of hearing aids (5 children & 5 adults). Binaural amplification and its uses.
6. Electro-acoustic evaluation of hearing aids (body level & ear level), with and without ear moulds. Equipment for analysis. Calibration of hearing aid analyser.
7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.
8. Specification sheets – BIS, ANSI, IEC with respect to hearing aids.
9. Administration of Self (Help) assessment scales.
10. Fitting hearing aids for sloping hearing loss.

Rehabilitation Audiology
1. Role-playing activities for speech reading, communication strategies and auditory learning.
2. Compile activities on management of deaf-blind children.
3. Compile activities on management of children with central auditory processing disorders.
4. Compile information on cochlear implants regarding candidacy, cost, places where it is done and rehabilitation of cases, in Indian contexts.

Diagnostic Audiology/Noise/Rehabilitative Technology
1. Holistic audiological assessment for differential diagnosis:
a. Speech: PI/PB Function, Stenger, BC Speech

b. Noise: SAL, SPIN, (10 cases)
c. Immittance audiometry: Basic tests, Acoustic Reflex Decay, Eustachian Tube function, SPAR
2. Compiling reports for the above.
3. Testing multiple handicapped children
4. Compile information on cochlear implants reg. candidacy, cost, places where it is done and rehabilitation of cases.
5. Calibration of pure tone audiometry (AC, BC, Speech)
6. Noise measurement and attenuation measurement of ear protection devices.

ISL 3. INDIAN SIGN LANGUAGE - 3

(Total = 30 hrs)

Theory

Unit 1: Perspectives on sing language usage

- Understanding deaf culture: Aspects of deaf people, culture and communication
- History of deafness and sign language in India

Practicals

UNIT	GRAMMAR	• TOPICS	HOURS
1	Revision Communicative expressions	Topics talking about the time	15
2	Negative sentences Finger spelling (alphabet)	Food (vegetables, fruits, beverages, etc.) Opposites	15

SEMESTER VI

B 6.1 NEUROGENIC LANGUAGE DISORDERS IN ADULTS

(Total = 64 hrs)

Unit 1 (12 hrs)

1. Neural bases of language: Neuroanatomical, neurophysiological and neurochemical correlates for language function
2. Pathophysiology of neurological lesions affecting speech and language including concepts of recovery, reorganization and relearning
3. Theoretical considerations in neurogenic language disorders: Competence Vs Performance; loss Vs Interference, Regression hypothesis, multilingualism, Unidimensional Vs multidimensional breakdown

Unit 2 (12 hrs)

1. Definitions of Aphasia
2. Etiologies: CVA, vascular supply to brain, Blood Brain Barrier, trauma etc.
3. Classification of aphasia based on anatomical, linguistic and psycholinguistic aspects
4. Clinical features: Linguistic, pyscho-social, neuro-behavioural
5. Associated problems in aphasia: their definition, classification and clinical features

Unit 3 (14 hrs)

1. General and specific neurological examination procedures (higher functions, cranial nerves, motor and sensory systems, reflexes and fundus)
2. Neurological investigations: Electrophysiological (Electro Encephalo Gram, Evoked potentials) and imaging (Computerized Tomography, Magnetic Resonance Imaging)
3. Assessment of speech, language and cognitive behaviour of adults with a languagebased disorder: Informal and formal test procedures(Western Aphasia Battery, Boston Diagnostic Aphasia Examination, Boston Naming Test, Minnesota Test for Differential Diagnosis of Aphasia, Porch Index of Communicative abilities, Functional Communication Profile, Token Test, Revised Token Test, Bilingual Aphasia Test, MAE and others; Indian tests and adaptations.

Unit 4 (14 hrs)

1. Other language disorders in adults: Introduction, Etiology, clinical profile, assessment and management
   - Subcortical aphasias
   - Traumatic Brain Injury
   - Right Hemisphere Damage Disorder
   - Primary Progressive Aphasia
   - Language disorders in Dementia
   - Schizophasia
   - Acquired dyslexias
   - Metabolic disorders
   - Aphasias in illiterates, sign language users, bilinguals / multilinguals and others.
2. Differential diagnosis of Adult Neurogenic disorders

Unit 5 (12 hrs)

1. Intervention: Prognostic indicators, Spontaneous recovery; General principles of therapy; specific techniques (Melodic Intonation therapy, Visual Action therapy, Schuell's Auditory stimulation, Thematic language stimulation and others)
2. Team approach; Group therapy; Family support-preparing family, friends and colleagues on what to expect and how to deal with aphasic as a person;Counseling regarding role of family; Individual counselling and spouse and family counselling
3. AAC

LIST OF BOOKS

Compulsory Reading:

1) Understanding Aphasia. (1993). Goodglass, H. Academic Press Inc.
2) Davis, G. A. (1993). A Survey of Adult Aphasia and Related Language Disorders Prentice Hall Inc.
3) Chapey, R. (1994). (Ed). Language Intervention Strategies in Ault Aphasia. Williams and Wilkins Publication

Additional/Optional Reading:

4) Speech and Language Evaluation in Neurology: Adult Disorders. (1985). Ed. Darby, J. K. Grune and Stratton Inc.
5) Acquired Speech and Language Disorders. (1994). Murdoch, B. E. London: Chapman and Hall.
6) Aphasia and Related Language Disorders. (1990). LaPointe, L. L. Theime Medical Publishers.

B 6.2 NOISE MEASUREMENTS AND HEARING CONSERVATION

(Total = 64 hrs)

Unit 1: (14 hrs)

a) Noise in the environment and effects of noise:

Definition of noise

Sources – community, industrial, music, traffic and others Types – steady & non-steady.

b) Auditory effects of noise exposure

- Historical aspects
- TTS and recovery patterns
- PTS
- Histopathological changes
- Effect of noise on communication, Speech Interference Level (SIL), Articulation Index (AI)
- Perceived Noise in dB (PN dB), Perceived Noise Level (PNL), Effective Perceived Noise Level (EPNL), Noise Criteria (NC) curves, Noise Reduction Rating (NRR), Signal to Noise Ratio (SNR)

c) Non-auditory effects of noise exposure

Physiological/Somatic & psychological responses, stress and health, sleep, audio-analgesia effects on CNS and other senses. Effects of noise on work efficiency and performance

Unit 2: (14 hrs)

Audiometry in NIHL

Puretone audiometry:

- Base line and periodic monitoring tests, high frequency audiometry, brief tone audiometry, correction for presbyacusis
- Instrumentation: Manual audiometer, automatic audiometer
- Testing environment
- High frequency audiometry

Speech audiometry:

Speech discrimination tests with and without the presence of noise

Filtered speech tests and time compressed speech tests

Social Adequacy Index

Other audiological evaluations:

- Impedance audiometry
- ERA
- OAE
- Tests for susceptibility

Unit 3: (12 hrs)

Noise & vibration measurement

- Instrumentation and procedure for indoor and outdoor measurement of ambient noise, traffic noise, aircraft noise, community noise and industrial noise.

Unit 4: **(12 hrs)**

Hearing conservation:

Need for hearing conservation program, steps in hearing conservation program
Ear protective devices: (EPDs)
- Types: Ear plugs, ear muffs, helmets, special hearing protectors, merits and demerits of each
- Properties of EPDs: Attenuation, comfort, durability, stability, temperature, tolerance
- Evaluation of attenuation characteristics of EPDs.
- Toughening

Unit 5: (12 hrs)
Legislations related to noise:
- Damage Risk Criteria (DRC) – definition, historical aspects, use of TTS and PTS, information in establishing DRC, - Committee on Hearing Bioacoustics & Biomechanics (CHABA), Air Force Regulation (AFR 160-3), American Academy of Ophthalmology & Otolaryngology (AAOO), ASA-Z 24.5, Damage risk contours, Walsh – Healey Act, Occupational Safety & Health Act (OSHA), Environmental Protection Agency (EPA), Indian noise standards.
- Claims for hearing loss: Fletcher point eight formula, AMA method, AAOO formula, California variation in laws, factors in claim evaluation, variations in laws and regulations, date of injury, evaluation of hearing loss, number of tests.- Indian studies/acts/regulations, American acts.

LIST OF BOOKS
Compulsory Reading:
1. Bruel, and Kjaer, (1982), Noise Control - Principles and practices.
2. Harris, C.M. (Ed.2), Handbook of Noise Control New York: McGraw-Hill.
3. Kryter, K.D. (1970). The effects of noise on Man. New York: Academic Press.
4. Tempest, N (1985). The Noise Handbook. London: Assessment Press.
5. Sataloff, R.T. (1987). Occupational hearing loss. Marcel Dekker, Inc.
6. Trivedi, P.R. and Gurudeep Raj (1992). Noise Pollution, 1st Ed. New Delhi: Akashdeep Publishing House.
7. BIS Specifications - List attached
- IS Specifications - Noise Measurements
- IS:7194-1973 Specification for assessment of noise exposure during work for hearing conservation purposes.
- IS:9167-1979 Specification for ear protectors.
- IS:6229-1980 Method for measurement of real-ear protection of hearing protectors any physical attenuation of earmuffs.
- IS:9876-1981 Guide to the measurement of airborne acoustical noise and evaluation of its effects on man.
- IS:7970-1981 Specification for sound level meters.
- IS:9989-1981 Assessment of noise with respect to community response.
- IS:10399-1982 Methods for measurement of noise emitted by Stationary road vehicles.

B 6.3 BASIC STATISTICS

(Total = 64 hrs)

Unit 1 (12hrs)

Introduction to statistics: Its importance in behavioural sciences; descriptive statistics and inferential statistics; usefulness of quantification in behavioural sciences; application to speech and hearing

Unit 2 (12hrs)

Measures: scales of measurement; nominal, ordinal, interval and ratio scales

Data collection: classification of data- class intervals, continuous and discrete measurement, drawing frequency curve, drawing inference from a graph

Unit 3 (12hrs)

Measurement of central tendency: Need, types- mean, median, mode; working out theses measures with illustrations

Measures of variability: Need, types of range, deviation- average deviation, standard deviation, variance; interpretation

Unit 4 (14hrs)

Normal distribution: general properties of normal distribution; theory of probability; illustration of normal distribution; area under normal probability curve

Variants from the normal distribution: skewness, kurtosis; their quantitative measurement; Introduction to non-parametric statistics

Unit 5 (14hrs)

Correlation: Historical contribution; meaning of correlation; types of correlationproduct-moment correlation, content correlation, rank correlation etc

Standard error sampling distribution; Type I and Type II errors, Y2, ‘t’ and ‘F’-tests;

Methods of significance of differences between means and their interpretation and probability levels-small samples, large samples

LIST OF BOOKS

Compulsory Reading:

1) Maxwell, D.L. and Satake, E. (1997). Research and Statistical Methods in Communication Disorders. Baltimore: Williams and Wilkins

2) Woods, A., Fletcher, P. and Hughes, A. (1986). Statistics in Language Studies. Cambridge: University Press.

B 6.4 SCIENTIFIC ENQUIRY IN AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

(Total = 64 hrs)

Unit 1 (12 hrs)

1. Scientific status of speech language pathology and audiology
2. Speech language pathology and audiology as a behavioural science
3. Need for scientific enquiry in speech language pathology and audiology
4. Choosing a research problem
5. Formulation of research question
6. Statement of research question
7. Formulation of hypothesis
8. Types of hypotheses

Unit 2 (12 hrs)

1. Parameters for scientific research in speech language pathology and audiology:

• Identification of variables and the types
• Types of data and its nature
• Measurement procedures in speech language pathology and audiology
• Instrumental and behavioural measures, and recording procedures

Unit 3 (12 hrs)

1. Sampling methods: types, methods of data collection
2. Application of the above with hypothetical illustrations

Unit 4 (14 hrs)

1. Introduction to research methods and designs: Ex post-facto, experimental, standard group comparisons, evaluation research etc
2. Application of these to clinical population and community research

Unit 5 (14 hrs)

1. Documentation of research: Reporting research-organization, analysis and presentation of data
2. Components of research article, report writing style
3. Ethics of research in behavioural sciences
4. Qualities of a researcher/scientific clinician

LIST OF BOOKS

Compulsory Reading:

1) Hegde, M.N. Clinical Research in Communicative Disorders- Principles and Strategies. (1994) (2nd Edition). Pro-ed.

2) Pannbacker, M.H. and Middleton, G.F. (1994). Introduction to Clinical Research in Communication Disorders. San Diego: Singular Publishing.

Additional/Optional Reading:

3) Stein, F. and Cutler, S.K. (1996). Clinical Research in Allied Health and Special Education. San Diego: Singular Publishing Group Inc.

4) Portney, L.G. and Walkins, M.P. (1993). Foundations of Clinical Research. Connecticut: Appleton and Lange.

B 6.5 AUGMENTATIVE ALTERNATIVE COMMUNICATION

(Total = 30 hrs)

Unit 1 (12 hrs)

- AAC – Introduction/overview
- Myths and facts about AAC
- AAC system components- Symbols, classification of symbols, Symbol sets – Standardized and non-standardized, selection of systems, techniques for communication, techniques for training, selection of modes, partnership issues and generalization,

Unit 2 (12 hrs)

- Assessment and decision making - Assessment for AAC candidacy, choosing an appropriate system and technique, training communication partners
- Vocabulary selection/language and oral/motor considerations and general intervention principles in different types of speech-language disorders.
- Team approach in the implementation of AAC
- AAC intervention for children & adults with communication disorders – Type specific selection considerations, generalization of learning and effective use of AAC

Unit 3 (6 hrs)

- Processing of signals, signs & symbol sets in normal and AAC users.
- Relevance of electronics and computers – AAC Applications in rehabilitation of various communication disorders

LIST OF BOOKS

Compulsory Reading:

1) Beukelman, D. & Mirenda, P. (2005). Augmentative and alternative communication: Supporting children & adults with complex communication needs (3rd ed.). Baltimore: Paul H. Brookes Publishing Company. (www.pbrookes.com)
2) Beukelman. D.R., Yorkston. K.M. and Dowden.(1985) Communication augmentation - A case book of clinical management. Taylor and Francis, London.
3) Enderby. P. (Ed.) (1987). Assistive communication aids. For the speech impaired. Churchill Livingstone Inc, New York.
4) Glennen. S.L. and Decoste. D.C. (1997). Handbook of augmentative and alternative communication. Singular Publishing Group Inc, San Diego, London.
5) Lloyd, L., Fuller, D., & Arvidson, H. (1997). Augmentative and alternative communication: A handbook of principles and practices. Needham Heights, MA: Allyn & Bacon.

Additional/ Optional Reading:

1) Musselwhite. C.R. and Louis. K.W.(1988). Communicative programming for person with severe handicaps, Vocal and augmentative strategies. Pro-Ed, Texas.
2) Silverman, F.H. (1980). Communication for the speechless. Prentice Hall Inc.

3) Tetzohner. F.H. and Jansen. M.H. (Eds.) (1996). Augmentative and alternative communication – European perspectives. Singular Publishing Group Inc, San Diego, California.
4) Vander Heiden. G. and Grilley. K. (Ed.)(1978). Non-verbal communication techniques and aids for the severely physically handicapped. University Park Press, New York.
5) Webster J.G. (Ed.). (1995). Elecronic devices for the communication handicapped. Chapman and Hall, London.

B 6.6 COCHLEAR IMPLANTS

(Total = 30 hrs)

Unit 1 (7hrs)

C I Technology

- Components and Working
- Electrical Hearing and Acoustical Hearing
- Signal Processing in Cochlear Implants

Unit 2 (6 hrs)

Pre Implant Procedures- Candidacy and Selection

- Behavioural Assessments
- Electrophysiological Assessments
- Speech Perception Testing
- Radiological Assessments
- Role of Team Approach and Cochlear Implant Counselling

Unit 3 (7 hrs)

Surgical and intra-operative Audiological procedures

a) Medical Surgical Procedures (by CI Surgeon)
b) Post Implant Electrophysiology

- EABR(Intra operative and post operative Procedures)
- NRT(Neural Response Telemetry)
- ESRT(Electrical Stapedial Reflex Threshold)

Unit 4 (6 hrs)

Recent Advances in Cochlear Implant Technology

- Bilateral Implantation
- Hybrid Systems
- Concepts on Bimodal Stimulation

Unit 5 (4 hrs)

Product Orientation -Overview of different products commercially available

LIST OF BOOKS

Compulsory Reading:

1) Clark, G.M., Cowan, R.S.C. & Dowell, R.C. (1997). Cochlear Implantation for Infants & Children: Advances. Singular Publishing Group Inc.
2) Cooper (1991), Practical aspects of Audiology: Cochlear implants: A practice guide. Whurr Publisher, London.
3) Skinner HW (1988), Hearing aid evaluation, Prentice Hall, Englewood Cliffs, NJ.
4) Pollack M (1980) Amplification for the hearing impaired. Grune and Stratton: NY

B 6.7 AUTISM SPECTRUM DISORDER

(Total = 30 hrs)

Unit 1 (3 hrs)

Understanding the Autism Spectrum: Neurobiological Considerations

• Characteristics shared across the autism spectrum

•The neurological underpinnings of the disorder

Unit 2 (6 hrs)

Profile of communication, Behaviour Regulation, Social Interaction, Play behaviour & Joint Attention in Individuals with ASD

- Profile of communication and social interaction in Individuals with ASD
- Profile of Behaviour Regulation, & Joint Attention in Individuals with ASD
- Play behaviour in children with ASD
- Role of joint attention, social interaction and play behaviour in development of communication in individuals with ASD

Unit 3 (6 hrs)

- Understanding the Social-Emotional Development, Executive Function & Theory of Mind of Children & Adolescents with ASD
- The features of social-emotional development in children & adolescents with ASD
- Use of Functional-Emotional Assessment Scale to assess the social-emotional development of children with ASD
- The role of executive function & Theory of mind in the social, behavioral experiences of children and adolescents with ASD

Unit 4 (5 hrs)

Early Identification & Assessment

- Red flags in children with ASD.
- Role of family members, professionals in early identification
- Formal & Informal Assessment by SLP
- Tools used in the assessment of children & adolescents suspected of ASD
- Importance of play-based assessment

Unit 5 (5 hrs)

Approaches to Selecting Intervention Strategies and Planning Collaboratively for Serving Children and Adolescents with ASD and their Families

- Current practices in early intervention for children with autism spectrum disorders
- Factors involved in the selection of intervention strategies that meet a child's goals
- Importance of a Team approach in the management of individuals with ASD
- Significance of Evidence-based decisions to select interventions

Unit 6 (5 hrs)

Intervention strategies for children with autism spectrum disorders

- Interventions that Support Language & Social Communication in Children with ASD- Milieu Teaching, Minimal Speech approach
- Parent Mediated Intervention- SCERT Model, Floor time
- Peer Mediated Intervention
- Alternative and Augmentative communication in children with ASD-PECS, Visual Schedules

LIST OF BOOKS

Compulsory Reading:

1) Baltimore, MD: The John Hopkins University Press. Lord, C., Risi,S., DiLavore, P. S., Shulman, C., Thurm, A., & Pickles, A. (2006). Autism from 2 to 9 years of age. Arch Gen Psychiatry, 63, 694-701.
2) Bauman, M. L., & Kemper, T. L. (2005). Structural brain anatomy in autism: What is the evidence? In M. L. Bauman & T. L. Kemper (Eds.), The neurobiology of autism-2nd edition (pp. 121-135).
3) Carter, A. S., Davis, N. O., Klin, A., & Volkmar, F. R. (2005). Social development in autism. In F. R.Volkmar, R. Paul, D. Cohen & A. Klin, Handbook of autism and pervasive developmental disorders-3rd edition (pp. 312-334). Hoboken, NJ: John Wiley & Sons.
4) Coonrod, E. E., & Stone, W. L. (2005). Screening for autism in young children. In F. R.Volkmar,R. Paul, D. Cohen & A. Klin, Handbook of autism and pervasive developmental disorders-3rd edition (pp. 707-729). Hoboken, NJ: John Wiley & Sons.
5) Diehl, S. F. (2003). The SLP's role in collaborative assessment and intervention for children with ASD. Topics in Language Disorders, 23 (2), 95-115.

Additional/ Optional Reading:

6) Fombonne, E. (2005). Epidemiological studies of pervasive developmental disorders. In F.R.Volkmar, R. Paul, D. Cohen & A. Klin, Handbook of autism and pervasive developmental disorders-3rd edition (pp.42-69). Hoboken, NJ: John Wiley & Sons.
7) Kasari, C., Chamberlain, B., & Bauminger, N. (2001). Social emotions and social relationships:Can children with autism compensate? In J. A. Burack, T. Charman, N. Yirmiya, & P. R. Zelazo (Eds.), The development of autism: Perspectives from theory and research (pp. 309-324). Mahwah, NJ: Lawrence Erlbaum Associates.
8) Krug, D. A., Arick, J. R., & Almond, P. J. (1993). Autism screening instrument for educational planning (2nd ed.). Austin, TX: Pro-ED.

B 6.8 VESTIBULAR EVALUATIONS

(Total = 30 hrs)

Unit 1 (8 hrs)
Anatomy and physiology of vestibular system. Vestibular apparatus, utricle, saccule, semicircular canals, vestibular pathway and reflex.

Unit 2 (8 hrs)
Pathologies related to vestibular system and balance and their medical diagnosis and treatment. Educate individuals on potential causes and effects of vestibular loss.

Unit 3 (8 hrs)
Diagnostic test of vestibular system and their interpretation: Caloric test, Rotational test, ENG, VNG, VEMP etc

Unit 4 (6 hrs)
Determination of candidacy for vestibular and balance rehabilitation therapy to persons with vestibular and balance impairments
Referring to other professions

LIST OF BOOKS

Compulsory Reading:

1. Jacobson, G.P. & Shepard, N.T. (2008). Balance function assessment and management. San Diego: Plural Publishing.

Additional/ Optional Reading:

2. Myers, B. L. (2011). Vestibular learning manual. San Diego: Plural Publishing

B 6.9 CLINICAL PRACTICUM (a) Speech – Language Pathology

At the end of Semester **VI**, the student should be able to carry out the following –
a) Assessment of 5 clients with aphasia / autism / LD /TBI / RHD using relevant tests
b) Planning, writing and executing therapy for 5 patients with apraxia / autism / LD/ TBI / RHD
c) Presenting a case in clinical conference
d) Counseling in the above patients
e) Record maintenance

B 6.9 CLINICAL PRACTICUM (b) Audiology

At the end of **VI** Semester, the student should be able to carry out the following –
Hearing Aid Trial Postings:
1. Hearing aid trial: pre-selection of hearing aids, styles, EAC, other issues, inspection of ear moulds. Functional gain method (10 children & 10 adults). Concept of speech banana, aided audiogram.
2. Observing Real Ear Insertion Gain measurement (10 cases)
3. Pre-selection based on audiological evaluations (10 cases)
4. Hearing Aid trials:
a. Functional gain, REIG, other methods with monoaural fitting, binaural fitting, Programmable hearing aid – Analog Digital
b. Explaining the benefits of hearing aid to the patient/caregiver
5. Counselling patients/caregivers regarding hearing aids – Care, maintenance, adjustments, tips to caregivers regarding acceptance of hearing aids (5 children & 5 adults). Binaural amplification and its uses.
6. Electro-acoustic evaluation of hearing aids (body level & ear level), with and without ear moulds. Equipment for analysis. Calibration of hearing aid analyser.
7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.
8. Specification sheets – BIS, ANSI, IEC with respect to hearing aids.
9. Administration of Self (Help) assessment scales.
10. Fitting hearing aids for sloping hearing loss.

Rehabilitation Audiology
1. Role-playing activities for speech reading, communication strategies and auditory learning.
2. Compile activities on management of deaf-blind children.
3. Compile activities on management of children with central auditory processing disorders.
4. Compile information on cochlear implants regarding candidacy, cost, places where it is done and rehabilitation of cases, in Indian contexts.

Diagnostic Audiology/Noise/Rehabilitative Technology
1. Holistic audiological assessment for differential diagnosis:
a. Speech: PI/PB Function, Stenger, BC Speech
b. Noise: SAL, SPIN, (10 cases)
c. Immittance audiometry: Basic tests, Acoustic Reflex Decay, Eustachian Tube function, SPAR
2. Compiling reports for the above.

3. Testing multiply handicapped children
4. Compile information on cochlear implants reg. candidacy, cost, places where it is done and rehabilitation of cases.
5. Calibration of pure tone audiometry (AC, BC, Speech)
6. Noise measurement and attenuation measurement of ear protection devices.

ISL 4. INDIAN SIGN LANGUAGE - 4
(Total = 30 hrs)

Theory

Unit 1: Perspectives on sing language usage

- Characteristics of good interpreters

Practicals

UNIT	GRAMMAR	• TOPICS	HOURS
1	Negative commands Negative responses to offers/suggestions Finger spelling (use)	Calendar (week/month/year) Colours Place names	22
2	Numbers Measures	Talking about money Animals	22