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:
   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:

Additional / Optional Reading:
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:

Additional/Optional Reading:
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:

Additional/Optional Reading:
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 / sagittal / 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.

LIST OF BOOKS
Compulsory Reading:

Additional / Optional Reading:
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

Unit 4 (6 hrs)
Components of Language: Morphology & Syntax

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:

Additional / Optional Reading:
B 1.6: ENGLISH COMMUNICATION

(Unit =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 of 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:
Additional/ Optional Reading:
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.
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:

Additional/Optional Reading:
7) Thirumalai M. S. Shyamala Chengappa (1988) Simultaneous Acquisition of two languages CIIL, Mysore.
   (a) Cambridge University Press.
   (b) Penguin Books.
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:

Additional Reading:
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:
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:

Additional Reading:
14. Correspondence Program for Parents of the Deaf, John Tracy clinic.
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.

Unit 2 (10 hrs)

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:
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:
3) Cark R.S Marine Pollution, Clanderson Press Oxford (TB)
5) De A.K. Environmental Chemistry, Wiley Eastern Ltd
6) Down to Earth, Centre for Science and Environment (R)
8) Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay ( R)

Additional/ Optional Reading:
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.
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.
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.
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
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 client-oriented)
5. Computerized intervention packages, metaphon therapy
LIST OF BOOKS

Compulsory Reading:

Additional/Optional Reading:
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:

Additional / Optional Reading:
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, Doepler-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:

Additional Reading:
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:
**Additional Reading:**
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: Piaget’s theory, the higher mental 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 adolescences, 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:
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:

Additional/Optional reading:
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) Nasalance 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 diary
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. Carry out 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. Carry out 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. Carry out 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

<table>
<thead>
<tr>
<th>UNIT</th>
<th>GRAMMAR</th>
<th>TOPICS</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Special statements</td>
<td>Greetings Describing people and objects (Adjectival predicates) Pronouns</td>
<td>15</td>
</tr>
</tbody>
</table>
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 aphonya 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:

Additional/Optional Reading:
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 rehabilitation 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, myoclonus, 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:

Additional/Optional Reading:
B 4.3 DIAGNOSTIC AUDIOLOGY: Part 2

(Total = 64 hrs)

Unit 1 (14 hrs)
Imittance evaluation
a) Introduction
b) Principle of immittance evaluation, Instrumentation
c) Tympanometry – tympanometric 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) Measurement 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:

Additional/Optional Reading:
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
LIST OF BOOKS

Compulsory Reading:

Additional Reading:
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:  
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, mendelian disorders, chromosomal disorders, nontraditional modes of inheritance, management of genetic disorders, gene therapy, human genome mapping project (HGMP)

LIST OF BOOKS
Compulsory Reading:
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 PRACTICUM (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
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 sign language usage  
- Effective communication with deaf people: Becoming a good signer  
- Deafness and society: Using sign language for inclusion in society  

**Practicals**

<table>
<thead>
<tr>
<th>UNIT</th>
<th>GRAMMAR</th>
<th>TOPICS</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Simple with question words</td>
<td>Family and relations, Common objects (clothing, household, etc.), Plants</td>
<td>12 hours</td>
</tr>
<tr>
<td>2</td>
<td>Questions with question words</td>
<td>Interrogatives, Places, People and professions, Actions</td>
<td>12 hours</td>
</tr>
</tbody>
</table>
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)
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:
Additional/Optional Reading:
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 leading 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, polynuiritis 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, Guillain – 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:
   Inc.
   R. St. Louis: Mosby.

Additional/Optional Reading
4) Acquired Speech and Language disorders - A Neuroanatomical and Functional Neurological
   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:**

**Additional Reading:**
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.
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)
2. The professional as a witness; documentation; handling legal issues

LIST OF BOOKS
Compulsory Reading:

Additional/Optional Reading:
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)
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)

Unit 4 (6 hrs)
Guthre’s contiguous 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 (6 hrs)

LIST OF BOOKS
Compulsory Reading:
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:
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:

**Additional/Optional Reading:**

B 5.8 EARMOULDS

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:
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:  
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.  
7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.  
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 sign language usage
- Understanding deaf culture: Aspects of deaf people, culture and communication
- History of deafness and sign language in India

Practicals

<table>
<thead>
<tr>
<th>UNIT</th>
<th>GRAMMAR</th>
<th>TOPICS</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Revision Communicative expressions</td>
<td>Topics talking about the time</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Negative sentences Finger spelling (alphabet)</td>
<td>Food (vegetables, fruits, beverages, etc.)</td>
<td>15</td>
</tr>
</tbody>
</table>
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, psychosocial, 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 language-based 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
   • Schizophrenia
   • 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:

Additional/Optional Reading:
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
   (EPNLF), 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-anaesthesia
   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:
- 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:
7. BIS Specifications - List attached
   - IS Specifications - Noise Measurements
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 correlation product-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:
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:

Additional/Optional Reading:
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:

Additional/ Optional Reading:


B 6.6 COCHLEAR IMPLANTS

(Total = 30 hrs)

Unit 1 (7hrs)
CI 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 (Intraoperative 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:
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:

Additional/ Optional Reading:
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:

Additional/ Optional Reading:
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:
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.
7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.
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 sign language usage
- Characteristics of good interpreters

**Practicals**

<table>
<thead>
<tr>
<th>UNIT</th>
<th>GRAMMAR</th>
<th>TOPICS</th>
<th>HOURS</th>
</tr>
</thead>
</table>
| 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 |