

## **RULES REGULATIONS & NORMS FOR BASLP**

### **1. Nomenclature:**

Approved nomenclature of the course shall be – BACHELOR OF AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY – Abbreviated as BASLP

### **2. Duration of the course**

1. The course shall be of 4 academic years including 1 year of internship.
2. As far as possible each academic year of the BASLP course will commence, latest by, August and will end by April each year.
3. At the end of each academic year there shall be examinations.

### **3. GENERAL CONSIDERATION AND TEACHING APPROACH**

1. BASLP curriculum is oriented towards training students to undertake the responsibilities of an Audiologist and Speech language pathologist capable of looking after the prevention, assessment and rehabilitation of speech, language, hearing and swallowing aspects.
2. Adequate emphasis is to be placed on cultivating logical and scientific habits of thoughts, clarity of expression, independence of judgment and ability to collect and analyze information and to correlate them.
3. The educational process should be placed in historical background as an evolving process and not merely as an acquisition of large number of disjointed facts without a proper perspective. The history of the field with reference to its evolution both in this country and rest of the world should form a part of this process.
4. Lectures alone are generally not adequate as a method of training and are a poor means of transferring information and even less effective at skill development and in generating the appropriate attitudes. Every effort should be made to encourage the use of the active methods related to demonstration and on firsthand experience. It will be best taught in a setting of clinical relevance and hands-on experience for students who assimilate and make this knowledge as part of their working skill.
5. Clinics should be organized in small groups so that a teacher can give personal attention to each student with a view to improve his skill and competence in handling the patient.
6. Proper records of the work should be maintained which will form the basis of the student's internal assessment for practicals and should be available for the inspectors at the time of inspection of the college by the Rehabilitation Council of India (RCI).
7. The vacation period to students in one calendar year should not exceed one and a half months.

### **4. Eligibility for admission**

- a) The candidate applying for admission to BASLP course should have obtained a minimum of 50% (40% in case of SC/ST candidates) in 10+2 examination or equivalent / two years of Pre- University/ Pre- Degree examination conducted by the Pre University Board of Education of Government of respective State, and further
- b) The applicant /candidate should have studied:  
Physics, Chemistry & Biology / Mathematics/ Computer Science/ Statistics/ Electronics / Psychology
- c) At the time of entry / admission to the first year of BASLP course the candidate should be of age 17 years or above

## 5. TRAINING

### 1. Training period and time distribution

The admission should be organized in such a way that teaching in first year starts by August 1<sup>st</sup> every year.

### 2. The period of four years are divided as follows:

#### a) First year consisting of the following subjects

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OA 010	Introduction to Speech Language Pathology and Speech Diagnostics and Therapeutics	75	3	80	20	100
OA 020	Introduction to Audiology and Audiological Evaluation.	75	3	80	20	100
OA 030	A) Anatomy B) Physiology C) Pathology Of Speech and Hearing System	75	3	30 30 20 80	7 7 6 20	100
OA 040	Biomedical Instrumentation and Acoustics	75	3	80	20	100
OA 050	Linguistics, Phonetics and Language Sciences	75	3	80	20	100
OA 060	Psychology related to Speech and Hearing	75	3	80	20	100
OA 070	A) Genetics B) Neurology C) Pediatrics	75	3	30 30 20 80	7 7 6 20	100
OA 080	Clinical Practicum-Speech Language Pathology	300		50	50	100
OA 090	Clinical Practicum-Audiology	300		50	50	100
Total Marks						900

b) Second year consist of following subjects

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OB 010	Normal and abnormal aspects of articulation	75	3	80	20	100
OB 020	Fluency and Its Disorders	75	3	80	20	100
OB 030	Normal and abnormal aspects of voice	75	3	80	20	100
OB 040	Diagnostic Audiology	75	3	80	20	100
OB 050	Part A: Educational Audiology and Rehabilitative Audiology	75	3	80	20	100
OB 060	Otolaryngology	75	3	80	20	100
OB 070	Statistics and Research Methods & epidemiology in speech and hearing	75	3	80	20	100
OB 080	Clinical Practicum- Speech Language Pathology	300		50	50	100
OB 090	Clinical Practicum- Audiology	300		50	50	100
Total Marks						900

c) Third year consist of following subjects

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OC 010	Motor Speech Disorders	75	3	80	20	100
OC 020	Child Language Disorders	75	3	80	20	100
OC 030	Aphasia and other Language Disorders	75	3	80	20	100
OC 040	Hearing Aids	75	3	80	20	100
OC 050	Pediatric Audiology	75	3	80	20	100
OC 060	Environmental Audiology	75	3	80	20	100
OC 070	Part A:Scientific Enquiry in Speech and Hearing Part B: Organization and Administration of Speech and Hearing Centers	75	3	80	20	100
OC 080	Clinical Practicum- Speech Language Pathology	300		50	50	100
OC 90	Clinical Practicum- Audiology	300		50	50	100
Total Marks						900

d) Fourth year shall constitute the internship year during which the candidates will be posted in any speech and hearing related institution approved by the respective college. The candidates shall abide by the internship program rules framed by the institutes from time to time.

**6. Coursework:** As given for each academic year in the annexures.

## **7. EXAMINATION REGULATIONS**

### **a. Attendance:**

Each candidate should put in at least 80% of attendance in Theory class & 80% attendance in Clinical Practicum in each academic year. Failure to put in /meet the required attendance by any student render him/her disqualified to appear in the University exams. The candidate who will not be able to take the exam for want of attendance will be declared as failed and will have to repeat the exam subsequently by putting in required attendance. Shortage of attendance up to 15% may be condoned by the vice chancellor on the recommendation of the head of the institution on payment of a fee prescribed by the university. There shall be no condonation if attendance is below 65% percentage in theory classes and 75% in clinical practicum during each academic year. A candidate having a shortage of attendance in clinical practicum is permitted to make up this shortage by attending clinical work during vacation. If a candidate represents his/ her Institution / University / State/ Nation in Sports / NCC/NSS/Extension program or any official activities, he / she is permitted to avail a maximum of 30 days in an academic year based on the recommendation and prior permission of the head of the institution. A candidate who does not have requirement of attendance will not be able to take examination or shall not be eligible to get admission for the next academic year.

### **b. INTERNAL ASSESSMENT**

It shall be based on periodical assessment, evaluation of student assignment, clinical case presentation etc. Regular examination should be conducted throughout the course. Weightage for internal assessment shall be 20% of the total marks in each subject. There shall be 2 examination and average will be taken as 50% of the internal assessment. The remaining 50% of the internal assessment will be based on day to day assessment. The candidate must secure at least 50% marks of the total marks fixed for internal assessment in a particular subject in order to be eligible to appear in the final university examination of the subject.

## **8. SCHEME OF EXAMINATION**

There shall be a university examination at the end of each academic year. Duration of each theory paper shall be for 3hours. Every theory paper shall comprise of seven questions out of which the students should write five. Each question shall carry 16marks with internal division of 10+6, 8+8 etc.

## MODEL QUESTION PAPER

Maximum mark-80

Time- 3hours

*Answer any five:*

**Paper title**

**Paper code:**

I

Sl. No	Question no.	Marks
I	A xxxxxxxxxxxxxx	16
II	B xxxxxxxxxxxxxx	8
	C xxxxxxxxxxxxxx	8
III	D xxxxxxxxxxxxxx	10
	E xxxxxxxxxxxxxx	6
IV	F xxxxxxxxxxxxxx	16
V	G xxxxxxxxxxxxxx	16
VI	H xxxxxxxxxxxxxx	16
VII	Ixxxxxxxxxxx	4x4
	Jxxxxxxxxxxx	
	Kxxxxxxxxxxx	
	Lxxxxxxxxxxx	
	Mxxxxxxxxxxx	

### 9. CLINICAL PRACTICUM EXAMINATION

Clinical practicum in speech language pathology and audiology shall be an examination by an internal and an external examiner for 50 marks. Internal assessment for 50 marks shall be made by the faculty of concerned department based on the clinical skills in assessment, remediation, clinical case presentation and clinical viva.

### 10. QUESTION PAPER SETTING, VALUATION etc.

- 1) There shall be a board of examiner's for preparing, scrutinizing and approving the question papers.
- 2) Minimum qualification required for examiner is three years of teaching experience
- 3) For medical subjects like Anatomy, physiology, pathology, E.N.T, paediatrics and neurology the question papers should be set and valued by medical doctors,  
( Preferably from teaching field ).
  - Genetics- Person with post graduation in genetics.
  - Linguistics and Phonetics – Linguists.

- Biomedical Instrumentation & Acoustics- Biomedical engineers, ( B.Tech or M.Tech Electronics).
- Before valuation the answer sheets has to be coded with false numbers.

### **11. CRITERIA FOR PASSING:**

In each subject a candidate must obtain 50% for a pass. This 50% includes a separate minimum of 50% for theory (university theory + internal assessment) and a separate minimum of 50% for clinical practicals (university clinical practicals+ internal assessment)

For declaration of first class with distinction, first class, second class the aggregate of total marks secured by the candidate in all the years put together shall be considered under

75% & more - First class with Distinction

60-74% -First class

50-59%- second class

Candidates who fail in first attempt in any subjects and pass subsequently shall not be ranked in distinction or first class.

### **12. ELIGIBILITY TO APPEAR FOR THE UNIVERSITY EXAMINATION**

A student who procures 50% of mark for internal assessment is qualified to appear for university examination provided he or she satisfies the percentage of attendance required as stated already.

### **13. CARRY OVER PASSING**

A candidate is allowed to carry all the previous uncleared theory paper to the subsequent academic year. However, candidate failing in clinical practicum examination shall not be eligible for admission to next academic year. Such candidates shall repeat the previous academic year's clinical work. A candidate who has not passed the first year will not be eligible for admission to the third year and the candidate who have not passed third year BASLP will not be eligible to take internship. Grace mark shall be awarded to a paper to a maximum of 1%, if after gracing the candidate gets minimum prescribed marks and passes in that paper. The maximum grace marks for the whole examination shall not exceed 10 marks. Grace marks will not be awarded to change the internal assessment marks and clinical practicum. Gracing shall not be done for the purpose of declaring classes (first with distinction, first class and second class).

Supplementary examination may be conducted within 6 months only for theory examination.

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

### **14. Internship**

#### **1. Duration**

The duration of internship will be for one academic year (10 months).

#### **2. Eligibility**

Students will be eligible to do internship only after passing all the papers of third year BASLP.

3. During the internship year the candidates should do a minimum of 50% of clinical postings outside the parent institute in any speech and hearing or related institution approved by the respective institutions.
4. The student has to obtain internship completion certificate from the parent institute to apply for a degree certificate.
5. Maintenance of records by students:  
Every student should maintain records of the number of hours of clinical work in different areas and institutions. This should be certified by the head of the institution or his/her nominee where the student is undergoing internship. The students should get the appraisal form duly filled by the supervisors in the respective institutions where they are undergoing internship and should be submitted to the parent institution in order to obtain internship completion certificate from the parent institutes. (See annexure)
6. Leave permitted: As per norms of the parent Institute.
7. Extension of internship: Internship shall be extended by the number of days the student remains absent unauthorizedly.
8. Stipend: As per the norms of the parent Institute.

#### **15. ELIGIBILITY OF AWARD OF DEGREE**

Each student is eligible to apply for award of BASLP degree if he/ she clears all the paper (Theory and clinical practicum of the 3 academic years and successful completion of 10 months of internship program)

#### **16. AWARD OF DEGREE**

The respective university will award the degree and issue the certificate after a candidate successfully completes the required University examinations and the compulsory Internship. No candidate will be awarded the degree before completion of Internship.

### **SCHEME OF CURRICULUM FOR FIRST YEAR**

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OA 010	Part A: Introduction to Speech and Language Pathology Part B: Speech Diagnostics and Therapeutics	75	3	80	20	100
OA 020	Part A: Introduction to Audiology Part B: Audiology Evaluation	75	3	80	20	100
OA 030	Anatomy, Physiology and Pathology of Speech and Hearing System	75	3	80	20	100
OA 040	Biomedical Instrumentation and Acoustics	75	3	80	20	100
OA 050	Linguistics, Phonetics and Language Sciences	75	3	80	20	100
OA 060	Psychology related to Speech and Hearing	75	3	80	20	100
OA 070	Genetics, Pediatrics and Neurology	75	3	80	20	100
OA 080	Clinical Practicum-Speech Language Pathology			50	50	100

OA 090	Clinical Practicum- Audiology			50	50	100
Total Marks						900

### **SCHEME OF CURRICULUM FOR SECOND YEAR**

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OB 010	Normal and abnormal aspects of articulation	75	3	80	20	100
OB 020	Fluency and Its Disorders	75	3	80	20	100
OB 030	Normal and abnormal aspects of voice	75	3	80	20	100
OB 040	Diagnostic Audiology	75	3	80	20	100
OB 050	Part A: Educational Audiology Part:B Rehabilitative Audiology	75	3	80	20	100
OB 060	Otolaryngology	75	3	80	20	100
OB 070	Statistics and Research Methods & epidemiology in speech and hearing	75	3	80	20	100

OB 080	Clinical Practicum-Speech Language Pathology			50	50	100
OB 090	Clinical Practicum-Audiology			50	50	100
Total Marks						900

### **SCHEME OF CURRICULUM FOR THIRD YEAR**

CODES/PAPER NO.	PAPER TITLE	TEACHING HOURS (MINIMUM)	EXAM DURATION	EXAM MARKS	IA MARKS	TOTAL MARKS
OC 010	Motor Speech Disorders	75	3	80	20	100
OC 020	Child Language Disorders	75	3	80	20	100
OC 030	Aphasia and other Language Disorders	75	3	80	20	100
OC 040	Hearing Aids	75	3	80	20	100
OC 050	Pediatric Audiology	75	3	80	20	100
OC 060	Environmental Audiology	75	3	80	20	100
OC 070	Part A:Scientific Enquiry in Speech and Hearing Part B: Organization and	75	3	80	20	100

	Administration of Speech and Hearing Centers					
OC 080	Clinical Practicum-Speech Language Pathology			50	50	100
OC 90	Clinical Practicum-Audiology			50	50	100
Total Marks						900

**B.Sc (Speech and Hearing) 1st Year**

**OA 010: INTRODUCTION TO SPEECH AND LANGUAGE PATHOLOGY  
&  
SPEECH DIAGNOSTICS AND THERAPEUTICS**

**PART:A. INTRODUCTION TO SPEECH AND LANGUAGE  
PATHOLOGY**

**A. Introduction to Speech and Language**

**Unit1: Basic Concepts in speech, language and communication (5hours)**

- a. Definitions of communication, speech, language and their components.
- b. Distinctions and similarities between them.
- c. Basic models, levels, modes and functions of speech communication
- d. Speech as an overlaid function, Speech chain.

**Unit 2: Bases of speech (15 hours)**

- a. Physical-Generation and propagation of sound, absorption and reflection of sound, free and forced vibrations, resonance, frequency response, sound pressure and intensity, spectrum. Speech mechanism as sound generator, vocal tract, periodic and aperiodic sounds, acoustic analysis and acoustic features of speech sounds, aerodynamics of speech production.
- b. Physiological - Physiology of respiratory, phonatory, resonatory and articulatory systems
- c. Social, psychological and linguistic basis of speech.
- d. Neurobiological and cognitive basis of speech and language

**Unit 3: Normal developmental aspects** (5hours)

- a. Normal development of speech and language
- b. Development of articulation
- c. Development of voice.
- d. Development of fluency and prosody

**B. Introduction to speech and language pathology**

**Unit 4: Basic concepts** (2hours)

- a. Definition
- b. Incidence and prevalence
- c. Causes of speech and language disorders

**Unit 5: Speech, language and behavioral characteristics of**

**a. Voice disorders.** (5hours)

- Disorders of pitch, loudness, quality
- alaryngeal voice
- dysarthrophonia
- Cleft palate

- b. Phonological disorders-misarticulation, apraxia in children and adults, dysarthria in children and adults. (2hours)

- c. Fluency disorders -stuttering, cluttering, neurogenic stuttering (2hours)

- d. Language disorders-aphasia in children and adults, cerebral palsy, mutism, pervasive developmental disorders, dyslexia, dysgraphia, agnosia, specific language impairment, mental retardation and hearing impairment. (4hours)

**PART: B. SPEECH DIAGNOSTICS AND THERAPEUTICS**

**A. Speech diagnostics**

**Unit 1** (5hours)

- a. Basic terminologies and concepts
  - Introduction to diagnostics
  - Terminologies in the diagnostic process
  - General principles of diagnosis
  - Diagnostic setup and tools

**Unit 2:** (10 hours)

- a. 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, tentative diagnosis; advantage/disadvantages

- Characteristics of a diagnostic clinician.

## **B. Speech therapeutics**

### **Unit 3:**

**(10hours)**

#### a. Basic concepts of therapeutics

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

### **Unit 4**

**(5hours)**

#### a. 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**

**(5hours)**

#### a. 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.

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**B.Sc (Speech and Hearing) Ist Year**  
**OA 020: INTRODUCTION TO AUDIOLOGY**  
**&**  
**AUDIOLOGICAL EVALUATION**

**PART: A. INTRODUCTION TO AUDIOLOGY**

**Unit 1:** **(5hours)**

- a. Audiology -Historical aspects
- b. 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

**Unit 2** **(10hours)**

- a. dB concept -Different aspects of the dB -power and pressure formulae, zero dB reference for pressure and power, calculation of actual SPL, reference and dB values with any two given values, calculation of overall dB when two signals are superimposed, hearing level, sensation level ,application of dB
- b. Threshold concept, threshold of audibility, MAP and MAF, threshold of pain, MCL, UCL, dynamic range, application.

**Unit 3** **(8hours)**

- a. Frequency and intensity: - octave frequency concept, their psychological correlates, relationship between pitch and frequency and pitch and intensity, differential sensitivity, differential threshold, JND, DL for frequency and intensity.

b. Phons and sones -relation between phones and sones, use of phone and sone graph, computation of relative loudness of two given sounds using these graphs.

**Unit4**

**(8hours)**

- a. Classification of hearing loss
- b. Causes of hearing impairment
- c. General characteristics of conductive, mixed and sensorineural hearing loss, hereditary deafness, congenital deafness, acquired hearing loss in children and adults, central auditory disorders.

**Unit 5**

**(5hours)**

- a. Tuning fork test -Rinne, Schwabach, Weber and Bing, interpretation, advantages, disadvantages, audiometric version of Weber and Bing test.

**PART:B.AUDIOLOGICAL EVALUATION**

**Unit 1:**

**Puretone audiometer**

**(8hours)**

- a. Historical developments, rationale behind puretone audiometry, classification of audiometers, parts of an audiometer, audiogram, symbols used, interpretation of audiogram, usefulness of audiogram, factors that affect AC threshold
- b. Bone conduction -historical developments, different types of BC vibrators, factors affecting BC thresholds including vibrator placement, size of vibrator, force of application, occlusion effect, central masking ,problems in bone conduction testing  
Rainville and SAL tests-methods of obtaining pure tone thresholds, noise levels permissible in audiometric rooms
- c. Indian and international standards. .

**Unit 2**

**(6hours)**

- a. Calibration of audiometers:- subjective calibration, real ear methods for AC and BC calibration electro-acoustic calibration of the output intensity through the headphones, insert receiver and bone vibrators, frequency calibration. Calibration of speech stimulus. Indian and International standards.

**Unit 3**

**(5hours)**

- a. Transducer -NBS 9A -performance of different types of earphones -WF 70S, TDH-39, TDH-49, TDG-50, ER-3A ,ear cushions. Artificial ear, artificial mastoid .Indian and international standards.

**Unit 4**

**(10hours)**

a. Definition, clinical use of masking for AC and BC. Different types of noise employed as maskers. Interaural attenuation, factors that affect interaural attenuation, when to mask, how much to mask, procedures for masking ,factors to be considered in adequate masking. An alternative approach for AC masking fusion -inferred threshold.

### **Unit 5**

**(10hours)**

a. Speech audiometry:-historical developments, different types of stimuli used for speech audiometry, speech detection threshold ,speech recognition threshold , SRT and PT A correlation , SRT and PT A disagreements , speech Identification score. Factors that affect scores in speech audiometry, live vs. write down response, electroacoustic system, signal-to-noise ratio, type of stimuli, half vs. full list, appropriateness of stimuli used in masking in speech audiometry. Procedure for obtaining SRT and SIS. BC speech audiometry -speech materials available in Indian languages. UCL, MCL, Dynamic range ,clinical applications ,PIPB function.

## **B.Sc (Speech and Hearing) Ist year**

### **OA 030: ANATOMY, PHYSIOLOGY AND PATHOLOGY OF SPEECH AND HEARING SYSTEMS**

#### **A. Anatomy and Physiology of speech and auditory systems**

##### **Unit 1:**

**(5hours)**

a. Preliminaries -The anatomical position, general anatomical terms, directions and locations, body planes, pairings, naming  
b. Elementary tissues -epithelial tissues, connective tissues, special connective tissues, muscle tissue, nervous tissue, vascular tissue.

##### **Unit 2:**

**(8hours)**

a. Embryology of the speech mechanism, embryology of external, middle, inner ear  
b. Anatomy and physiology of the respiratory, phonatory, articulatory systems.

##### **Unit 3:**

**(2hours)**

- a. Blood supply for the speech mechanism
- b. Blood supply for the hearing mechanism

##### **Unit 4:**

**(20hours)**

a. External ear - anatomy and physiology of the pinna, external auditory canal  
b. Middle ear -anatomy of the tympanic membrane, ossicular chain, Eustachian tube, walls of the tympanic cavity, muscles, ligaments and tendons.

Physiology-transformer action of the middle ear, Function of the middle ear muscles and Eustachian tube.

c. Inner ear: - Anatomy -parts of the inner ear, bony labyrinth and membranous labyrinth, cochlea, Semicircular canals, utricles, saccule, innervation to the cochlea.

Physiology of the cochlea, cochlear microphonics, summing potential, theories of hearing in brief, modes of bone conduction, physiology of the SSC, utricle and saccule.

### **Unit 5**

**(10hours)**

a. Auditory pathway and central hearing mechanism: Anatomy of the afferent and efferent auditory pathway, action potential

## **B. Pathology of speech and hearing systems**

### **Unit 1**

**(4hours)**

a. Introduction to pathology, cell injury and cellular adaptations. The normal cell, etiology of cell injury, pathogenesis of cell injury, pigments, atrophy, hypertrophy, cellular aging.

### **Unit 2**

**(4hours)**

a. Immune pathology, inflammation and healing, components of immune system, diseases of immunity; inflammation, chemical mediators of inflammation, morphology of inflammation, regeneration, factors influencing healing.

### **Unit 3**

**(10hours)**

a. Infections and parasitic diseases with reference to speech and hearing systems

b. Environmental and nutritional diseases

c. Genetic diseases with reference to speech and hearing diseases caused by bacteria, fungi and viruses, neoplasia, environmental pollution, chemical and drug injury, essential nutrients, disorders of vitamins, diet and cancer, mendelian disorders

### **Unit 4**

**(6hours)**

a. Pathologies of the laryngeal, articulatory and phonatory systems, inflammatory conditions, tumours, developmental anomalies, carcinoma.

### **Unit 5**

**(6hours)**

a. Pathologies of the auditory systems -inflammatory lesions of the ear, tumors.

**B.Sc (Speech and Hearing) Ist year**  
**OA 040 : BIOMEDICAL INSTRUMENTATION AND ACOUSTICS**

**A. Introduction to electronic devices**

**Unit 1:**

**(10 hours)**

a. Basic principle of operation and working of

- Resistors, potentiometers, capacitors, inductors and transformers
- Semiconductor diodes and transistors
- LEOs seven segment displays, LCOs
- FETs, UJTs

b. Introduction to linear and digital integrated circuits

c. DC power supply.

- Block diagram of a DC power supply, description and working of each block
- Linear regulated power supplies, line regulation and load regulation, specifications of a DC power supply unit
- SMPS

d. AC power supply

- AC voltage stabilizers -manual, automatic and servo controlled
- UPS, CT and inverters

e. Signal characteristics

**B. Fundamentals of acoustics**

**Unit 2**

**(20 hours)**

a. Physics of sound

- Nature and propagation of sound
- Sound characteristics such as frequency, pitch, amplitude, intensity
- Wavelength and loudness -sone, phons etc
- Sound pressure level, sound power level.

b. Quality and properties of sound

- Frequency response and its control, harmonic structure
- Reflection and absorption, acoustic impedance, reverberation, artificial reverberation

c. Acoustic treatment

- Choosing the right acoustic
- Absorption coefficient, Sabine's formula

d. Sound treatment, reproduction and recording

- Microphones -carbon, piezoelectric, moving coil, condenser etc
- Loudspeaker and their enclosures.
- Magnetic tape recording and reproduction, optical disc recording and reproduction
- Sound level meters

**C. Introduction to computers and digital electronics**

**Unit 3**

**(15 hours)**

a. Fundamentals of digital electronics

- OJ Binary number system, Hex code, bit, byte, etc,
- Logic gates, counters, flip-flops etc.

b. Introduction to computers

- Block diagram of a computer
- Hardware, software, memory devices and other peripherals
- Specifications of a personal computer
- Care and preventive maintenance of computes and peripherals.

**D. Instrumentation for speech and hearing.**

**Unit 4**

**(15 hours)**

a. Introduction to electronic instrumentation

- Transducers and electrodes
- Filters and pre-amplifiers
- Power amplifiers and oscillators etc.

b. 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

c. Safety aspects, care and preventive maintenance of biomedical instruments

### **E. Introduction to digital signal processing**

#### **Unit 5**

**(15 hours)**

- Need for digital signal processing and its advantages over analog signal processing
- Analog to digital and digital to analog converters.
- Basics of an IIR and FIR systems,
- Applications of digital signal processing in speech and hearing field.

### **B.Sc (Speech and Hearing) Ist year**

#### **OA 050: LINGUISTICS, PHONETICS AND LANGUAGE SCIENCES**

#### **Unit 1: Linguistics**

**(15hours)**

- 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
- Morphology -concepts of morph, allomorph, morpheme, bound free and compound forms, roots etc. Processes of word formation, content and function words, endocentric and exocentric constructions, form classes, grammatical categories. inflection and derivation, paradigmatic and syntagmatic relationship. Principles and practices of morphemic analysis.

#### **Unit 2: Syntax, semantics and applied linguistics:**

**(15hours)**

- Syntax-different methods of syntactic analysis -IC analysis, phrase structure, grammar, transformational generative grammar -Introduction to the major types of transformations. Sentence types, notions about competence versus performance, deep structure versus surface structure, acceptability versus grammaticality, language versus parole etc.
- A brief introduction to semantics -semantic feature theory, pragmatics.

#### **Unit 3: Phonetics and phonology**

**(15hours)**

- a. Introduction to phonetics and its different branches-articulatory, acoustic, auditory and experimental phonetics, air-stream mechanism, articulatory classification of sounds-segmentals and supra-segmentals, classification description and recognition of vowels and consonants. Pathological aspects of speech sounds production
- b. Transcription systems with special emphasis on IPA. Transcription of samples of normal and disordered speech.
- c. Introduction to phonology, classification of speech sounds on the basis of distinctive features Application of distinctive feature theory to speech pathology and speech therapy, phonotactics, phonotactic patterns of English and Indian languages, phonemic analysis-Principles and practices; their practical implications for speech pathologists, common phonological processes like, assimilation, dissimilation, metathesis, hapology, epenthesis, spoonerism, vowel harmony, nasalisation, neutralization.

#### **Unit 4: Language acquisition**

**(15hours)**

- a. Issues in first language acquisition-prelinguistic stages, linguistic stages, acquisition of Phonology, acquisition of morphology, acquisition of syntax, acquisition of semantics, acquisition of pragmatics, language and cognition.
- b. A brief introduction to theories and models of language acquisition -biological maturation theory, linguistic theory, behavioral theory, information processing theory, social interaction theory An integrated approach to these theories communicative competence and its development.
- c. Issues in second language acquisition -inter-language theory, language transfer and linguistic interference, the factors influencing second language acquisition/learning, differences between first language acquisition and second language acquisition/learning. Bilingualism.
- d. Applied linguistics with special reference to communication disorders. Usefulness of morphemic and syntactic analysis in planning speech and language therapy.

#### **Unit 5: Issues in multilingualism**

**(15hours)**

- a. An introduction to the language families of the world.
- b. An introduction to the language families of India
- c. Writing systems -types of writing, history of writing systems, Indian writing systems.

**B.Sc (Speech and Hearing) Ist year**  
**OA 060: PSYCHOLOGY RELATED TO SPEECH AND HEARING**

**Unit 1** **(7hours)**

- a. Definition of clinical psychology – historical development, modern history of clinical psychology, its current status and scope as a specialty in health sciences, role of clinical psychology in speech and hearing disorders.
- b. Concept of normality and abnormality, models of mental disorders, biological, psychological, social models.

**Unit 2** **(12hours)**

- a. methodology in clinical psychology – case history, clinical interviewing, clinical observation, types of psychological assessments, considerations for speech and hearing disorders
- b. classification of abnormal behavior; history, need, rationale , present systems DSM and ICD

**Unit 3** **(26hours)**

- a. Motor development – early motor development –stages in motor development – manipulate behaviour, handedness, development of complex motor skills, motor development during later childhood and adolescence, decline with age
- b. Cognitive development – evolutionary growth of intelligence, growth from early childhood to adolescence, decline with age, piaget’s theory of cognitive development
- c. Emotional and social development
- d. Assessment of cognitive functions, personality, interpersonal relationships, diagnosis and tests used and interpretation of test results.

**Unit 4** **(18hours)**

- a. Introduction definition of learning – scope and methods – types of learning – importance of studying psychology of learning in communication disorders

- b. Experimentation in learning – human and animal learning – quantitative assessment of learning, learning curves
- c. Theories of conditioning – classical conditioning by Pavlov and its principles, operant conditioning by Skinner and its principles.

**Unit 5** **(12hours)**

- a. Biological, neurochemical, neuropsychological, neurophysiological correlates of learning
- b. Techniques derived based on operant conditioning, shaping, chaining, prompting, time-out, token economy, reinforcement and contingency management, aversive therapy.

**B.Sc (Speech and Hearing) Ist year**

**OA070: GENETICS, PEDIATRICS AND NEUROLOGY**

**A. Genetics**

**Unit 1** **(4 hours)**

- a. Principles of genetics -genes, human chromosome, cytogenetics, mitosis and meiosis, numerical aberrations, structural aberrations, the sex chromosome anomalies, symbols used in pedigree construction, traits, environment- genetic interactions influencing fetus.

**Unit 2** **(4 hours)**

- a. Laboratory techniques -indirect methods, direct methods, new techniques for genetics –cloning molecular genetics, study of DNA.

**Unit 3** **(4 hours)**

- a. Genetic components of communication impairment -MR, autism, dyslexia, specific reading disability, stuttering

**Unit 4** **(4 hours)**

- a. Genetic basis of hearing impairment-use of gene libraries in the study of the molecular genetics of auditory system epidemiology of genetic hearing impairment, audiological approach audiometric patterns and genetic hearing loss.

**Unit 5** **(4 hours)**

- a. Syndromes, communication disorders, hearing loss -chromosomal syndromes, single-gene syndromes polygenic-multifactorial syndromes, sporadic syndromes, environmental syndromes, genetic counseling.

**Pediatrics**

**Unit 1:**

a. Growth and development -basic concepts, growth from birth to puberty, growth during adolescent period. (3hours)

**Unit 2:**

a. Early identification of perinatal pediatric disorders leading to speech and hearing impairment. (3hours)

**Unit 3:**

a. Nutritional disorders in children -protein energy malnutrition, water soluble vitamins, fat soluble vitamins, trace elements. (3hours)

**Unit 4:**

a. Childhood disabilities -developmental diseases, cerebral palsy, attention deficit hyperactivity disorder, learning disability, childhood autism, early detection therapy for developmental delay (10hours)

**Unit 5 (6hours)**

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

**PART B: NEUROLOGY**

**Unit 1 (10hours)**

a. Central neural system -neural structure, applied anatomy, cranial nerves, blood supply, circle of Willi.  
b. Transmission of information in neural system-nerve fibres, synaptic transmission, action potential, chemical transmission, excitatory and Inhibitory potential, neuromuscular transmission.

**Unit 2 (4hours)**

a. Developmental anomalies -spinal cord defects, syringomalacia and bulbia, Arnold chain malformations.  
b. Hydrocephalus-source and circulation of CSF, types and etiopathogenesis.

**Unit3 (2hours)**

a. infections-meningitis, encephalitis

**Unit 4 (10hours)**

a. Cerebrovascular diseases -ischemic brain damage -hypoxic ischaemic encephalopathy, cerebral infarction -intracranial hemerrhage -intracranial, subarachnoid.  
b. Trauma to the CNS-subdural haematoma, epiduralhaemotoma parenchymal brain damages

- c. Demyelinating diseases-multiple sclerosis, perivenous encephalomyelitis  
d. Degenerative, metabolic and nutritional disorders-Alzheimer's disease, parkinsonism, metabolic hereditary, acquired-neuronal storage disorder, Wilson's disease, phenylketonuria, nutritional-Wernicke's encephalopathy, pellagra, alcoholic cerebellar degeneration.

**Unit 5 (4hours)**

- a. Tumours of the CNS -Gliomas, embryonal tumours of meninges, metastatic Peripheral nervous system -structure and function of peripheral nerve, nerve sheath tumours -schwannoma, neurofibroma and Von Recklinghausens's disease, malignant peripheral nerve sheath tumours.

**B.Sc (Speech and Hearing) IInd year**

**OB010: NORMAL AND ABNORMAL ASPECTS OF ARTICULATION**

**PART A:PHONOLOGICAL DISORDERS**

**Unit 1 (10 hours)**

- a. Definition of articulation, place and manner of articulation of different speech sounds, cardinal vowels, secondary cardinal vowels, secondary articulation  
b. Phonological development: Theories of pre linguistic development, phonological development.

**Unit 2 (10 hours)**

- a. Factors affecting the development of articulation  
b. Distinctive features -different systems and implications  
c. Material development to study articulatory behavior  
d. Acoustics of vowels and consonants.

**Unit 3 (5hours)**

- a. Misarticulation
- Definition, epidemiological findings, incidence and prevalence
  - Causes -sensory, structural, motor and neurological causes
  - Types of misarticulation -lispings, rhotacism-definition, types and characteristics.

**Unit 4 (10 hours)**

- a. Factors related to misarticulation

b. Assessment (i) Modes of testing (ii) Classification of articulation tests

c. Articulatory and prosodic problems associated with hearing impairment, dysarthria, cerebral palsy and mental retardation.

**Unit 5**

**(10 hours)**

a. Articulation therapy techniques

- Definition and stages of articulation therapy -sequence of therapy -MIDVAS
- Motoric approaches -progressive approximation, integral stimulation, motokinesthetic approach, phonetic placement, multiple phoneme approach, traditional therapy, programmed conditioning therapy, sensory motor therapy, motoric automatization
- Linguistic approaches -distinctive feature therapy, minimal pair therapy, language based therapy
- Instrumentation.

**PART. B: MAXILOFACIAL ANOMALIES**

**A. Maxillofacial anomalies**

**Unit 1**

**(8hours)**

- a. Embryology -development of the palate, lip and nose
- b. Types and classification of cleft lip and palate
- c. Causes -genetic, environmental and other causes

**Unit 2**

**(8hours)**

a. Associated problems

- Communication disorders
- Feeding, psychological and dental problems

b. Syndromes associated with cleft palate

C. Assessment of cleft lip/palate and its sequelae -instrumental and perceptual.

**Unit3**

**(6hours)**

a. Management of cleft lip and palate surgery, speech therapy, prosthesis

**Unit4**

**(6 hours)**

Velopharyngeal inadequacy

- Definition, causes and classification
- Compensatory articulation
- Assessment and management of VPI

**Unit5**

**(2hours)**

Glossectomy, mandibulectomy-types, speech characteristics and management.

**B.Sc (Speech and Hearing) IInd year**  
**0B020: FLUENCY AND ITS DISORDERS**

**Unit 1** **(10hours)**

- a. Fluency: definition, development of fluency, factors influencing fluency
- b. Definitions of intonation, rhythm, stress -development of intonation, rhythm, stress. Their implications to therapy
- c. Evaluation of fluency
- d. Other prosodic features in fluency disorders.

**Unit 2** **(15hours)**

- a. Stuttering
  - Definition, etiology, epidemiological findings, prevalence and incidence
  - Stuttering: characteristics, nature of stuttering, adaptation effect, consistency effect, situational variability, stuttering and heredity.
- b. Normal non-fluency, primary stuttering, secondary stuttering
- c. Development of stuttering
- d. Differential diagnosis of developmental stuttering from neurogenic stuttering, cluttering, normal nonfluency.

**Unit 3** **(15hours)**

- a. Introduction to theories of stuttering -organic vs. functional, cerebral dominance, diagnosogenic and learning theories, demands and capacities model
- b. Assessment and diagnosis of stuttering and associated problems, prevention of early stuttering.

**Unit 4** **(20hours)**

- a. Therapy for stuttering

- Rationale, prolongation, shadowing, habit rehearsal techniques, DAF, masking, shock therapy, desensitization, highlighting, time out, air flow and modified air flow, sequence of therapy
- MIDVAS, transfer and maintenance, relapse and recovery from stuttering, measurement of therapy progress, naturalness rating.

#### **Unit 5**

**(15hours)**

- a. Cluttering- definition, etiology, characteristics, differential diagnosis, associated problems and assessment procedure, therapeutic consideration
- b. Neurogenic stuttering-characteristics, etiology, differential diagnosis and management issues. .

### **B.Sc (Speech and Hearing) IInd year**

#### **0B030: NORMAL AND ABNORMAL ASPECTS OF VOICE & LARYNGECTOMY**

##### **PART A: VOICE**

#### **Unit 1**

**(15hours)**

##### a. Voice

- Definition, review of anatomy of the respiratory, phonatory and resonatory systems
- Development of voice and factors influencing
- Theories of phonation
- Characteristics of normal voice. Physiological, acoustical and aerodynamic correlates of voice
- Evaluation of voice and implication to abnormal voice.

#### **Unit 2**

**(15hours)**

##### a. Definition of normal and abnormal voice

- Causes and classification of abnormal voice
- Incidence and prevalence of abnormal voice.

##### b. Causes, diagnosis, differential diagnosis and therapy for

- Hysterical aphonia
- Spasmodic dysphonia
- Plica-ventricularis
- Mutational voice disorders
- Diplophonia

#### **Unit 3**

**(5hours)**

- a. Vocal hyperfunctional disorders
  - Vocal abuse
  - Vocal nodule, vocal polyp, contact ulcer
- b. Voice problems in geriatrics

**Unit 4** **(5hours)**

- a. Neurological problems resulting in voice disorders
- b. Paralysis of the vocal cords -causes, types, characteristics, differential diagnosis and management
- c. Voice problems in hearing impaired
- d. Congenital voice disorders

**Unit 5** **(5hours)**

- a. Resonatory disorders-hypernasality, hyponasality, causes, characteristics and management.
- b. Management of the problems of professional voice users

**PART B: Laryngectomy**

**Unit 1** **(15hours)**

- a. Definition, incidence and prevalence
- b. Causes and symptoms of laryngeal cancer
- c. Types and characteristics of laryngectomy surgery
- d. Total laryngectomy-definition, characteristics, associated problems
- e. Assessment of laryngectomy.

**Unit 2** **(15hours)**

- a. Management of laryngectomy
  - Esophageal speech –anatomy, candidacy, different types of air intake procedure, speech characteristics in esophageal speech
  - Tracheo-esophageal speech -anatomy, candidacy, different types of TEP, fitting of prosthesis, speech characteristics, complications in TEP
  - Artificial larynx -different types, selection of artificial larynx, speech characteristics
  - Pharyngeal speech, buccal speech, ASAI speech, gastric speech
  - Pre and post-operative counseling

**B.Sc (Speech and Hearing) IInd year**

**0B040: DIAGNOSTIC AUDIOLOGY**

**PART A:DIAGNOSTIC AUDIOLOGY: BEHAVIOURAL TESTS**

**Unit 1**

**(8hours)**

a. Introduction to diagnostic audiology

- Need for test battery approach in auditory diagnosis and integration of results of audiological tests.
- Indications for administering audiological tests to identify-

-Cochlear pathology

-Retrocochlear pathology

-Functional hearing loss

-Central auditory processing disorders

**Unit 2**

**(8hours)**

a. Tests to differentiate between cochlear and retrocochlear pathology

- ABLB, MLB
- SISI,modified SISI
- Tests for adaptation
- Bekesy audiometry
- Brief tone audiometry
- PIPB function

**Unit 3**

**(5hours)**

a. Tests to detect pseudohypoacusis

- Pure tone tests including tone in noise test, stenger test
- Speech tests including Lombard test, Stenger test, lip-reading test, Doeffler -Stewert test
- Identification of functional hearing loss in children

**Unit 4****(8hours)**

Tests to detect central auditory disorders -

- a. Monoaural low redundancy tests-(i) Filtered speech tests, (ii) Time compressed speech test, (iii) Speech-in-noise test, (iv) SSI with ICM, (v) Other monaural low redundancy tests.
- b. Dichotic speech tests -(i) Dichotic digit test, (ii) Staggered spondaic word test, (iii) Dichotic CV test, (iv) SSI with CCM, (v) Competing sentence test, (vi) Other dichotic speech tests.
- c. Binaural interaction tests-(i) RASP (ii) BFT, (iii) MLD, (iv) Other binaural interaction tests
- d. Temporal ordering tasks (i) Pitch pattern test, (ii) Duration pattern tests, (iii) Other temporal ordering tests.

**Unit 5****(8hours)**

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

**PART B: DIAGNOSTIC AUDIOLOGY : PHYSIOLOGICAL TESTS****Unit 1****(10hours)****Immittance evaluation**

- a. Introduction
- b. Principle of immittance evaluation, instrumentation
- c. Tympanometry -tympanometric peak pressure, static immittance, gradient/tympanometric width, compensated tympanogram
- d. Reflexometry: reflex path way, ipsilateral and contralateral acoustic reflexes, special tests, Jerger box pattern
- e. Clinical application of immittance evaluation
- f. Immittance evaluation in the pediatric population

**Unit 2****(10hours)****Auditory brainstem response**

- a. Introduction and classification of AEPs
- b. Instrumentation
- c. Test procedure
- d. Factors affecting auditory brainstem responses
- e. Interpretation of results and clinical application
- i. ABR in the pediatric population

**Unit 3****(5hours)****Middle and long latency auditory evoked potentials**

- a. Test procedure
- b. Factors affecting middle and long latency evoked potentials
- c. Interpretation of results and clinical application

d. Findings in the pediatric population

**Unit 4** (8hours)

**Otoacoustic emissions**

- a. Introduction and classification of OAEs
- b. Instrumentation
- c. Measurement of OAE procedure
- d. Interpretation of results and clinical application
- e. Findings in the pediatric population

**Unit 5** (5hours)

**Vestibular system and assessment**

- a. Introduction to structure and function
- b. Symptoms of vestibular disorders
- c. Assessment
  - Caloric tests
  - Behavioral tests
  - Electronystagmography

**B.Sc (Speech and Hearing) IInd year  
0B050: EDUCATIONAL AUDIOLOGY**

**Unit 1** (5hours)

- a. Definitions and goals in aural rehabilitation, classification of hearing handicap
- b. Early identification and its importance in aural rehabilitation.

**Unit 2** (6hours)

- a. Unisensory vs. multisensory approach
- b. Acoupedic approach
- c. Manual vs. oral form of communication, manual communication systems that parallel English (Manual alphabet); interactive systems (cued speech: Rochester method); those alternative to English (ASL) Indian Sign Language, Contrived system (SEE-I, SEE-II, Signed English)
- d. Total communication.

**Unit 3** (6hours)

- a. Methods of teaching language to the hearing impaired
- b. Natural method: maternal reflective method
- c. Structured method (grammatical method); Fitzgerald key, box technique, others
- d. Computer aided method.

**Unit 4** (9hours)

- a. Educational placement of hearing impaired children:
  - Preschool training
  - Integration
  - Partial integration
  - Segregation: day school vs. residential school

- b. Criteria for recommending the various educational placements
- c. Factors affecting their outcome.

**Unit 5**

**(9hours)**

- a. Educational problems of hard-of-hearing in India.
- b. Counseling the parents and teachers regarding the education of the hearing handicapped
- c. Setting-up classrooms for the hearing handicapped
- d. Home training - need, preparation of lessons, correspondence programs, follow-up.

**REHABILITATIVE AUDIOLOGY**

**Unit 1**

**(6hours)**

**Management of children with special needs**

- a. Management of the deaf-blind child
- b. Management of children with central auditory processing problems

**Unit 2**

**(10hours)**

**Speech reading**

- a. Definitions
- b. Need (i) For those with hearing aids; tactile devices; cochlear implants (ii) for those without devices (iii) for children (iv) for adults. .
- c. Visibility of speech sounds -audiovisual perception vs. visual perception
- d. Visual perception of speech by the hard-of-hearing
- e. Tests for speechreading ability
  - Denver quick test of lipreading ability
  - John Tracy clinic test
  - Utlay test
  - Helen test
  - Mason multiple choice test

**Unit 3**

**(8hours)**

- a. Factors influencing speechreading
  - Related to the speechreader
  - R Related to the speaker
  - Related to the environment
- b. Methods of training: analytical vs synthetic (including speech tracking)
- c. Individual and group training

- Purpose
- Requirement for each -i.e. space, number, selection of participants
- Other consideration

#### **Unit 4**

**(8hours)**

Auditory learning

- a. Definitions 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. Methods of auditory training
- e. Individual vs group auditory training

#### **Unit 5**

**(8hours)**

- a. Communication strategies
  - Anticipated strategies
  - Repair strategies
- b. Speech reading activities
  - For adults and children
  - For individual vs. group activities
- c. Auditory training activities
  - For patients of different age groups
  - In patients with congenital and acquired hearing losses
  - Verbal vs. nonverbal material
  - For individual vs group activities

**B.Sc (Speech and Hearing) IInd year**  
**OB 060:OTOLARYNGOLOGY**

**Unit 1**

**(25hours)**

- a. Diseases of the external, middle and inner ear leading to hearing loss -congenital malformations, traumatic lesions, infections.

**Unit 2**

**(9hours)**

- a. Other causes of hearing loss -facial paralysis, tumors of the cerebello-pontine angle, acoustic neuroma.

**Unit 3**

**(9hours)**

- a. Causes of speech disorders -diseases of the mouth, tumours of jaws and oral cavity, nasopharynx and pharynx, pharyngitis, diseases of tonsils and adenoids.

**Unit 4**

**(25hours)**

- a. Congenital diseases of larynx -differences between an infant and an adult larynx, stridor, causes of infantile stridor, disorders of structure-laryngomalacia, Bifid epiglottis, laryngeal web, atresia, laryngeal cleft, paralysis of vocal cords, tumors and cysts, laryngitis, laryngeal trauma and stenosis.

**Unit 5**

**(7hours)**

- a. Oesophageal conditions: congenital abnormality-atresia, tracheo -oesopharyngeal fistula, stenosis, short oesophagus, Neoplasms -benign, malignant, lesions of the oral articulatory structures.

**B.Sc (Speech and Hearing) IInd year**  
**OB070: STATISTICS AND RESEARCH METHODS**  
**&**  
**EPIDEMIOLOGY RELATED TO SPEECH AND HEARING**

**Unit 1** **(10 hours)**

- a. Introduction, definition, importance of statistics in behavioural sciences, descriptive statistics and inferential statistics, usefulness of qualification in behavioural sciences (application to speech and hearing)
- b. Measurements – scales of measurements – nominal, ordinal, interval and ratio scales.

**Unit 2** **(10 hours)**

- a. Data collection, classification of data, class intervals, continuous and discrete measurements, drawing frequency polygon, types of frequency polygon, histogram, cumulative frequency curve, Ogives, drawing inference from graph. Methods of sampling, use of sampling, use of sampling methods in various situations, types of sampling, interference.

**Unit 3** **(10 hours)**

- a. Measures of central tendency, need, types: mean, median, mode, working of these measures with illustrations. Measures of variability – need, types: range, quartile deviation, average deviation, standard deviation, variance, interpretation. Normal distribution- general properties of normal distribution, theories of probability, illustration of normal distribution, area under the normal probability curve and application. Variance from the normal distribution, skewness, quantitative measurement of skewness, kurtosis, measurement of kurtosis, Factors contributing for non normal distribution.

**Unit 4****(10 hours)**

- a. Correlation – historical contribution, meaning of correlation, types: product moment correlation, variation of product- moment correlation, rank correlation.
- b. Methods of significance – need for, significance of the mean, sampling error, significance of differences between means, interpretation of probability levels, small samples, large samples.

**Unit 5****(10 hours)**

- a. An introduction to research – the formal and formative approaches
- b. Methods of research in behavioural sciences – research designs, measuring, purpose, principles, needs, applications between group designs and single subject research designs.
- c. Doing, reporting and evaluation research – formulation of research questions, principles of good writing, internal consistency evaluation, evaluation of research reports.

**Epidemiology****Unit 1****(5hours)**

- a. History of speech and hearing
- b. Population at risk for hearing loss and communication delay at risk children, established risk children, high risk checklist.

**Unit 2****(7 hours)**

- a. Incidence and prevalence of communication disorders, speech defects in general, phonological disorders, stuttering, voice disorders, language disorders -in children, adults and geriatric population,
- b. Incidence and prevalence of hearing loss -in children, adults and geriatric population, in general various types of hearing loss.

**Unit 3****(3 hours)**

- a. Epidemiologic methods -questionnaire survey, screening, personal survey, testing, media.

**Unit4****(5 hours)**

- a. Practicals I -school screening for incidence of communication disorders and hearing loss in rural and urban population.

**Unit 5****(5 hours)**

- a. Practicals II -community services -survey for incidence of communication disorders and hearing loss in
  - Rural population
  - Urban population
  - Children
  - Adults
  - Geriatrics

## **B.Sc (Speech and Hearing) IIIrd year**

### **OC010: MOTOR SPEECH DISORDERS**

#### **PART A: MOTOR SPEECH DISORDERS IN CHILDREN**

##### **Unit1**

**(15hours)**

##### a. Introduction to neuromotor organization and sensorimotor control of speech

- Motor areas in cerebral cortex, motor control by sub cortical 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

##### **Unit 2**

**(10hours)**

##### a. Cerebral Palsy

- Definition, causes and classification
- 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
- Neuromuscular development in normals and cerebral palsy
- Reflex profile.
- Associated problems.
- Assessment of speech in cerebral palsy -objective and subjective methods
- Differential diagnosis of cerebral palsy
- Speech and language problems in cerebral palsy
- Introduction to different approaches .in neuromuscular education (Bobath, Phelps,etc)
- Speech rehabilitation in cerebral palsy
  - Verbal approaches -vegetative exercises, oral sensorimotor facilitation techniques,
  - compensatory techniques-correction of respiratory, phonatory, resonatory & articulatory errors

- Team approach to rehabilitation
- Neuro-surgical techniques for cerebral palsy

**Unit 3** **(5hours)**

a. Apraxia of speech in children or developmental apraxia

- Definition.
- Description -verbal and nonverbal apraxia
- Differential diagnosis-dysarthria and other developmental speech disorders
- Management of developmental apraxia of speech -facilitation techniques for oral motor movements, speech therapy techniques, generalization of speech

**Unit 4** **(5hours)**

a. Mental retardation -neurogenic aspects, classification and types of speech disorders and techniques for speech correction

b. Syndromes with motor speech disorders. Examples-

- Juvenile progressive bulbar palsy, Congenital supranuclear palsy, Guiliain-Barre syndrome  
Duchenne Muscular dystrophy

**Unit 5** **(5hours)**

- a. Application of alternative and augmentative communication methods in developmental dysarthrias and developmental apraxia of speech -symbol selection, techniques for communication, assessment for AAC candidacy, choosing an appropriate system and technique, training communication patterns, effective use of AAC.

**PART B: MOTOR SPEECH DISORDERS IN ADULTS**

**Unit 1** **(10hours)**

a. Definition and classification of dysarthria in adults

b. Types of dysarthria in adults

c. 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, polyneuritis and neurosyphilis
- Traumatic conditions -traumatic brain injury and dysarthria
- Toxic conditions -dysarthria due to exogenic and endogenic causes.
- Degenerative and demyelinating conditions-multiple sclerosis, Parkinsons disease, motor neurone diseases, amyotrophic lateral sclerosis.
- Genetic conditions-Huntingtons chorea, Guiliain -Barre syndrome
- Others leading to dysarthria -Anoxic conditions, metabolic conditions, idiopathic conditions and neoplasm.

**Unit 2** **(10hours)**

a. Assessment of dysarthria

- Instrumental analysis
  - Physiological and electrophysiological methods.
  - Acoustics.
  - Advantages and disadvantages of instrumental analysis of speech in dysarthria
- Perceptual analysis -measures, standard tests and methods, speech intelligibility assessment scales, advantages and disadvantages of perceptual analysis of speech in dysarthrias

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

**Unit 3****(5hours)**

a. Management of dysarthria -medical, surgical and prosthetic approaches -speech therapy

- Vegetative exercises
- Oral sensorimotor facilitation techniques
- Compensatory approaches -correction of respiratory, phonatory. articulatory and prosodic errors
- Strategies to improve intelligibility of speech

**Unit 4****(5hours)**

a. Apraxia of speech in adults

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

**Unit 5****(5hours)**

a. Alternate and augmentative communication systems for adult dysarthric and apraxic individuals. Classification of symbols, selection of systems, techniques for communication, assessment for AAC candidacy, choosing an appropriate system and technique, training communication partners, generalization of learning and effective use of AAC in adult dysarthrics and apraxics.

**B.Sc (Speech and Hearing) IIIrd year**  
**OC 020 : CHILD LANGUAGE DISORDERS**

**Unit 1**

**(15 hours)**

a. Review of theories of language acquisition in children

- Biological maturation approaches
- Cognitive approaches
- Linguistic approaches
- Information processing theories
- Behavior theory
- Pragmatic approaches

**Unit 2**

**(15 hours)**

a. Neurobiological correlates - neuroanatomical, neurophysiological and neurochemical aspects of language development

**Unit 3**

**(15 hours)**

a. Speech and language characteristics of children with

- Mental retardation/syndromes related to child language disorders
- Autism and pervasive developmental disorders
- Developmental dysphasia/specific language impairment
- Acquired dysphasia
- Learning disability/dyslexia.
- MSD/ attention deficit hyperactivity disorders

**Unit 4**

**( 15 hours)**

a. Diagnosis of speech and language disorders in children: tests and protocols

- Differential diagnostic characteristics of children with language disorders various behavioral and linguistic tests and profiles
- Assessment procedures for normal and children with language disorders -medical, neurobehavioral, neurolinguistic measures.

**Unit 5**

**(15 hours)**

- a. Approaches and techniques for management of speech and language disorders in children - cognitive linguistic, behavioral, medical methods of treatment -team work.

**B.Sc (Speech and Hearing) IIIrd year**

**OC 030: APHASIA AND OTHER LANGUAGE DISORDERS**

**Unit 1**

**(15 hours)**

a. Neurobiological aspects of language in adults

- Neuroanatomical, neurophysiological and neurochemical correlates for language function
- Neurolinguistic models and language processes -connectionists, hierarchical, global, process and computational models.

**Unit2**

**(15 hours)**

a. Historical aspects of aphasiology.

- Historical review and phases of aphasia and related adult language disorders
- Review of definitions and causes of aphasia; TBI, RHD, dementia, schizophasia and PPA
- Cortical and sub cortical aphasias, nature of language disorders in adults.

**Unit 3**

**(15 hours)**

a. Classification of language disorders in adults

- Need for classification
- Approaches to classification
- Various classification systems
- Characteristic features of the various types -speech, language and linguistic, behavioral and cognitive characteristics of adults with language disorders

**Unit 4**

**(15 hours)**

a. Assessment of adult language disorders

- Assessment of speech, language, linguistic and cognitive behavior of adults with language disorders using various tests
- Linguistic investigations and implications in the assessment of adult language disorders
- Reflections on approaches to assessment in multilingual situation
- Theories of spontaneous recovery and prognostic indicators of adult language disorders.

#### **Unit 5**

**(15 hours)**

##### a. Intervention strategies for adult language disorders

- Principles of language intervention
- Techniques for intervention -medial, linguistic, behavioral and computational methods
- Team approach in rehabilitation of adult language disorders
- Counseling and home management for adult language disorders.

### **B.Sc (Speech and Hearing) IIIrd year OC 040: HEARING AIDS**

#### **Unit 1**

**(5 hours)**

##### a. Historical development of hearing aids

b. Review of basic elements of hearing aids -microphone, amplifier, -receiver/vibrator, cords, batteries.

#### **Unit 2**

**(7 hours)**

##### a. Type of hearing aids - Part A

- Body level, ear level.
- Binaural, pseudo binaural, monaural
- Directional hearing aids, modular hearing aids
- Group amplification -hard wire, induction loop, FM, infrared
- Implantable hearing aids.
- Master hearing aids

#### **Unit 3**

**(7 hours)**

##### a. Types of hearing aids -Parts

- Routing of signals, head shadow/baffle/diffraction effects
- Output limiting: peak clipping, compression
- Extended low frequency amplification, frequency transposition

#### **Unit4**

**(7 hours)**

##### a. Mechano-acoustic couplers (Ear molds)

- Types
- Procedure
- Effect of acoustic couplers on the hearing aid output

## **Unit 5**

**(10 hours)**

### a. Electro-acoustic measurements for hearing aids

- Purpose, parameters, instrumentation, procedure, variables affecting EAM
- Electro-acoustic measurements, BIS, IEC and ANSI standards
- Environmental tests.

## **PART B: REHABILITATIVE TECHNOLOGY FOR HEARING IMPAIRED**

### **Unit 1**

**(8 hours)**

#### a. Recent advances in hearing aids

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

### **Unit 2**

**(7 hours)**

#### a. Assistive listening devices -types and selection (Telephones, Television, typing technology etc)

### **Unit 3**

**(10 hours)**

#### a. Hearing aid selection

- Pre-selection factors
- Prescriptive and comparative procedures
- Functional gain and insertion gain methods
- Use of impedance, OAEs and AEPs audiometry
- Hearing aids for conductive hearing loss
- Hearing aids for children
- Hearing aids for elderly.
- Selection of non-linear programmable and digital hearing aids

### **Unit 4**

**(8 hours)**

- a. Cochlear implants- components, terminology, candidacy, advantages and complications, brainstem implants.

**Unit 5**

**(6 hours)**

- a. Care, maintenance and trouble shooting of hearing aids  
b. Counseling and, orienting the hearing aid user (Patient and significant others)

**B.Sc (Speech and Hearing) IIIrd year**

**OC050: PEDIATRIC AUDIOLOGY**

**Unit 1**

**(15 hours)**

- a. Need for identifying: mild hearing losses, conductive hearing losses, sloping hearing losses and fluctuating hearing losses  
b. High risk register.
- Recommendations of the Joint Committee on infant screening -1994 and 2000 position statement
  - Universal hearing screening vs high risk register
  - High risk register usage in India

**Unit 2**

**(15 hours)**

- a. Methods used to screen for conductive hearing losses and SN hearing losses
- Behavioral tests (awakening tests, bottle feeding test, behavioral observation audiometry, etc)
  - Objective methods (Immittance audiometry, reflexometry, Crib-O-Gram, auditory cradle, accelerometer recording system, reflex inhibition audiometry, evoked response audiometry, otoacoustic emissions, etc)

**Unit 3**

**(10 hours)**

- a. Development of human auditory system  
b. Development of auditory behavior -prenatal hearing, newborn hearing, auditory development from 0-1 year.

**Unit 4**

**(20 hours)**

- a. Hearing testing in neonates and infants
- Behavior observation audiometry
  - Conditioning techniques:
    - Visual reinforcement audiometry and its modifications including CORA
    - PIWI and peep show audiometry

- TROCA
- Play audiometry
- Others

b. Modifications required while testing multiply handicapped children

**Unit 5:**

**(15 hours)**

a. Speech audiometry in children.

- Modification required while carrying out speech audiometry in children
- Speech detection threshold
- Speech recognition threshold
- Speech recognition scores -PBK, WIPI, NU Chip, Early speech perception test, Ling's six sound tests, auditory number test, tests available in Indian languages
- BC speech audiometry.

**B.Sc (Speech and Hearing) IIIrd year  
OC 060: ENVIRONMENTAL AUDIOLOGY**

**Unit 1**

**(20 hours)**

a. Noise in the environment and effects of noise: Definition of noise, sources -community, industrial, music, traffic and others, types -steady and non-steady

b. Auditory effects of noise exposure

- Historical aspects
- TTS and recovery patterns
- PTS
- Histopathological changes
- Effect of noise on communication, SIL, AI
- Noy, PNdB, PNL, EPNL, NC curves, NRR. SNR

c. Non-auditory effects of noise exposure

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

**Unit 2**

**(15 hours)**

a. Audiometry in NIHL

- Puretone audiometry.
  - Base line and periodic monitoring tests, high frequency audiometry, brief tone audiometry correction for presbycusis
  - 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
- Other audiological evaluations: Impedance audiometry, ERA, OAE, Tests for susceptibility

**Unit3**

**(10 hours)**

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

**Unit4****(15 hours)**

## a. Hearing conservation

- Need for hearing conservation program, steps in hearing conservation program, ear protective device (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****(15 hours)**

## a. Legislations related to noise

- DRC-definition, historical aspects, use of TTS and PTS, information in establishing DRC, CHABA, AFR 160-3, AAOO, ASA-Z 24.5, damage risk contours, Walsh-Healey Act, OSHA, 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 acts/regulations, American acts.

**B.Sc (Speech and Hearing) IIIrd year****OC 070: SCIENTIFIC ENQUIRY IN SPEECH AND HEARING****Unit 1****(5 hours)**

## Scientific status of speech-language pathology and audiology

- Speech language pathology and audiology as behavioral sciences
- Need for scientific enquiry in speech-language pathology and audiology
- Choosing a research problem, formulation of research question, statement of research question, formulation of hypothesis, types of hypothesis.

**Unit 2****(10 hours)**

## a. 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 behavioral measures and recording procedures

**Unit 3****(10hours)**

## a. Research methods and designs

- Types of research in speech-language pathology and audiology and their application to clinical population and community research
- Research designs for speech-language pathology and audiology, discussion of hypothetical research problem, assessment and evaluation of feasibility of application of various research designs for speech-language pathology and audiology

**Unit 4** (7 hours)

a. Behavioral statistics

- Basic statistical procedures for behavioral research
- Application with hypothetical illustrations

**Unit 5** (6 hours)

a. Documentation of research

- Reporting research -organization, analysis and presentation of data
- Components of research article, report writing style
- Ethics of research in behavioral sciences
- Qualities of a researcher/scientific clinician.

**PART B: ORGANIZATIONS AND ADMINISTRATION OF SPEECH AND HEARING CENTRES**

**Unit 1** (6 hours)

a. Rehabilitation of the speech and hearing handicapped

- Need for rehabilitation and hearing conservation
- Functions of speech and hearing centers in different set-ups
- Private practice, evaluation based practice
- Government organizations, NGOs
- Community based rehabilitation
- Role of itinerant speech therapist, anganwadis, resource teachers etc.

**Unit 2** (10 hours)

a. Public laws and codes

- Code of ethics
- Rehabilitation Council of India , Disability related Acts
- Consumer protection Act, noise pollution Act and other public laws
- Facilities and concessions available for speech and hearing disabled

**Unit 3** (6 hours)

a. Organization of speech and hearing centers

- Setting up a speech and hearing center.
- Organization of space, time and personnel
- Recruiting personnel- rules, salary etc.

**Unit4** (10 hours)

a. Administrative procedures

- Budget, financial management and other issues
- Records and record keeping -different types
- Purchase formalities
- Leave rules and other benefits

**Unit 5**

**(5 hours)**

a. Public education and marketing services

- Organizing camps, screening programs, seminars, workshops etc
- Marketing professional skills
- Ethical standards
- Public education methods

**B.Sc (Speech and Hearing) Year Scheme  
CLINICAL PRACTICALS**

**1.1: INTRODUCTION TO SPEECH AND LANGUAGE PATHOLOGY**

**Unit 1:**

1. Reading practical work book
2. Demonstration of different types of wave forms -quasi-periodic, quasi-random, burst and Silence
3. Listening to cassettes: (a) How they hear (b) Stress, rhythm and intonation (c) Cardinal vowels (d) IPA transcription (e) Different speech disorders (f) Speech development
4. Measurement of the following in 5 normal subjects: (a) Habitual frequency (b) Frequency range (c) Optimum frequency (d) Intensity (e) Intensity range (f) Rise time (g) Fall time (h) Vital capacity (i) Mean air flow rate G) Phonation duration
5. Recording normal speech samples
6. Counting syllables in a standard passage
7. Production of various speech sounds and their identification
8. Listening to different pitch and their identification
9. Submission of practical records

**Unit 2:**

1. Oral mechanism examination on 5 normal children and 5 normal adults
2. Oral mechanism examination on 2 children with structural oral deficits and 2 adults with structural or neurogenic disorders
3. Perceptual analysis of speech and language parameters in 2 normal children and 2 normal adults
4. Perceptual analysis of speech and language parameters in any two disorders each in children and adults
5. Analysis of speech and language behavior of population from diverse cultural background
6. Observation of diagnostics procedures
7. Report on the available clinical facilities and clinical activities of the institute
8. Prepare a chart and show the developmental stages for speech and language behavior
9. Report on the available audiovisual material in the speech pathology laboratory and therapy clinic

**SPEECH DIAGNOSTICS AND THERAPEUTICS**

1. Observe the evaluation process of at least 5 different speech and language disorders in children
2. Observe the evaluation process of at least 5 different speech and language disorders in adults
3. Administer any one standardized test on a child and adult with any speech and language disorder
4. Administration of standardized tests for assessment of delayed speech and language development such as  
REEL, SECS, 3DLAT, PPVT
5. Study the available normative data (Indian/Western) of speech such as respiratory, phonatory, resonatory and articulatory parameters
6. Study the available normative data (Indian/Western) of language such as phonology, semantics, and syntax, morphology and pragmatic measures.
7. Observation of various therapeutic methods carried out with children and adults with speech and language disorders
8. Familiarize with the sources for referral and parent counseling procedures
9. Preparation of a model diagnostic report of a patient with speech and language disorders
10. Preparation of a model diagnostic report of a patient with speech and language disorders
11. Preparation of a therapy kit
12. Submission of record.

## **1.2: INTRODUCTION TO AUDIOLOGY**

1. Development case history forms for adults and children
2. Take case history for 5 adults
3. Take case history for 5 children
4. Find out pathological condition based on case history for 10 adults
5. Plot audiogram for 10 cases
6. Administer audiometric version of Weber and Bing test on 5 normal hearing persons

## **AUDIOLOGICAL EVALUATION**

1. Take audiograms for 10 normal hearing persons.
2. Find out bone conduction threshold on forehead/mastoid placement on 10 normal hearing persons
3. Find out SRT, SDT & SIS through headphone and bone conduction on 10 normal hearing persons
4. Find out MCL, UCL and dynamic range for 10 normal hearing persons
5. Administer puretone and speech audiometry on patients
6. Carryout masking for AC, BC and speech audiometry whenever indicated.

## **2.1: PHONOLOGICAL DISORDERS**

### **Unit 1:**

1. Perceptual analysis of normal articulation in five subjects
2. Administration of articulation tests to five subjects
3. Measurement of speech intelligibility in five subjects
4. Measurement of oral sensory perception in five subjects
5. Measurement of nasality in five subjects.
6. Measurements of resonance in twin tubes
7. Measurement of auditory discrimination
8. Visualization of glottal spectra, oral tract resonance and speech spectra for /a/, /i/, /u/
9. Submission of practical record

### **Unit 2:**

1. Evaluation of two clients with phonological disorder

2. Use appropriate instruments for diagnosis and rehabilitation of phonological disorders
3. Use of software for evaluation
4. Preparation of an audiocassette or public education pamphlet
5. Pattern analysis of speech sample of a client with phonological disorder
6. Counseling the client/parent with phonological disorder
7. Administration of articulation test on one normal and one disordered client with phonological disorders
8. Submission of records

### **MAXILLOFACIAL ANOMALIES AND LARYNGECTOMY**

1. Administration of diagnostic tests for cleft palate, glossectomy, mandibulectomy
2. Submission of a report on a client with cleft palate/glossectomy or mandibulectomy using the available performae and tests
3. Perceptual analysis of speech of one client each with cleft lip and palate, glossectomy and mandibulectomy
4. Submission of a report on a client with cleft palate/glossectomy/ mandibulectomy on therapy techniques used
5. Submission of record

## **2.2: FLUENCY AND ITS DISORDERS**

### **Unit 1:**

1. Analysis of fluency in one normal speech sample-child & adult percentage of individual/total disfluency
2. Rating intelligibility in five speech samples
3. Measurement of rate of speech- perceptual and instrumental in five speech samples.
4. Perceptual and instrumental analysis of intonation, rhythm and stress in five speech samples
5. Listening to tests of intonation, rhythm and stress
6. Submission of practical record.

### **Unit 2:**

1. Analysis of disfluency of one client fluency disorders.
2. Perceptual analysis of 5 speech samples of fluency disorders
3. Instrumental analysis of 5 speech samples of fluency disorders
4. Perceptual and instrumental analysis of intonation, rhythm and stress of 5 clients with fluency disorders
5. Submission of therapy report of 2 clients with fluency disorders
6. Counseling of 2 clients with fluency disorders
7. Transcription and analysis of speech sample of a case with fluency disorder using IPA
8. Preparation of audiocassette and public education pamphlet on fluency disorder
9. Assessment of a client with fluency disorder on standard test for fluency assessment (SSI.SPI)

## **2.3: VOICE AND ITS DISORDERS**

### **Unit 1:**

1. Reading practical workbook
2. Perceptual analysis of five voices
3. Instrumental analysis of five normal voice for the following parameters: (a) Frequency and related parameters (b) Intensity and related parameters (c) Spectra (d) Electroglography (e) Software for measuring various dimensions of voice, quality of voice (f) Recording of voice samples (g) Measurements (special) in musicians -pitch using pitch pipe, musical range.

**Unit 2:**

1. Perceptual analysis of 5 abnormal voices
2. Instrumental analysis of 5 abnormal voices
3. Submission of a report on diagnosis for 5 clients with voice disorders
4. Submission of a report on therapy for 5 clients with voice disorders
5. Submission of audiocassette and public education pamphlet on voice disorders
6. Transcription and analysis of speech sample of a client with voice disorder
7. Counseling a client with voice disorder
8. Submission of records

**LARYNGECTOMY:**

1. Administration of diagnostic tests for laryngectomy
2. Perceptual analysis of speech samples of TEP, esophageal and artificial larynx.
3. Insertion and use of different types of TEP prosthesis in a model.
4. Submission of record

**2.4: DIAGNOSTICS AUDIOLOGY: BEHAVIOURAL TESTS**

1. Administer tests to differentiate between cochlear and retro-cochlear pathology and interpret results.
2. Administer puretone and speech tests to detect pseudo-hypacusis
3. Administer puretone and speech tests to detect central auditory processing disorders
4. Interpretation of results of different audiological tests

**DIAGNOSTIC AUDIOLOGY: PHYSIOLOGICAL TESTS**

1. Carryout immittance evaluation on 10 normal hearing persons
2. Observation of immittance evaluation carried out on patients
3. Observation of recording of AEPs and OAEs

**2.5: EDUCATIONAL AUDIOLOGY**

1. Role-playing activities for teaching language to the hearing impaired
2. Prepare schedules for educational placement of 5 hearing impaired children having different hearing capacities
3. Counseling parents regarding education of the hearing impaired.

**REHABILITATIVE 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

### **3.1: MOTOR SPEECH DISORDERS IN CHILDREN.**

1. Perceptual analysis of speech of any two clients with motor speech disorders
2. Instrumental analysis of speech of any two clients with motor speech disorders
3. Preparation of audiocassette and public education pamphlet on motor speech disorders in children
4. Transcription & analysis of phonological processes in motor speech disorders in children using IPA
5. Counseling a client/parent with motor speech disorder
6. Submission of record

### **DYSARTHRIA AND APRAXIA**

1. Assess any two clients with dysarthria and apraxia
2. Perceptual analysis of speech of anyone client with dysarthria/apraxia
3. Instrumental analysis of speech of anyone client with dysarthria/apraxia
4. Submission of audiocassette of public education pamphlet on anyone aspect of dysarthria or apraxia
5. Transcription and analysis of speech sample of a client with dysarthria or apraxia using IPA
6. Counseling a client with dysarthria or apraxia
7. Submission of records

### **3.2: CHILD LANGUAGE DISORDERS**

1. Evaluate 2 normal children and 2 children with language disorders
2. Record language samples of 2 children with language disorders
3. Transcription of language samples of children with language disorders
4. Provide therapy for 2 children with language disorders
5. Counseling parents of 3 children with language disorders
6. Submission of an audiocassette on any aspect of evaluation/therapy with a child language disorder
7. Submission of records

### **3.3: APHASIA AND OTHER LANGUAGE DISORDERS**

1. Administer available tests for aphasia and related disorders
2. Submit report on assessment and evaluation of a client with aphasia and related disorders
3. Submit report on therapeutic intervention of a client with aphasia and related disorders

4. Transcription and analysis of speech samples of any two clients with aphasia and related language disorders
5. Submission of an audiocassette or public education pamphlet on aphasia or related language disorders.
6. Counseling a client/family member about the disorder
7. Submission of records

### **3.4: HEARING AIDS**

1. Prepare a record of physical features of different types of hearing aids
2. Preparation of different types of ear molds.
3. Carryout electro acoustic measurements of various types of hearing aid.

### **REHABILITATIVE TECHNOLOGY FOR HEARING IMPAIRED**

- 1 Hearing aid selection using functional and insertion gain measurements
2. Test patients with different ALDs
3. Familiarization with programmable and digital hearing aids
4. Troubleshooting of hearing aids
5. Demonstration and counseling of hearing aid use to patients
6. Compile information on cochlear implants regarding candidacy, cost, places where it is done and rehabilitation of cases.

### **3.5: PEDIATRIC AUDIOLOGY**

1. Administer high-risk register to medical/non-medical professionals
2. Preparation of different types of ear molds.
3. Carryout electro-acoustic measurements of various types of hearing aids.

### **3.6: ENVIRONMENTAL AUDIOLOGY**

1. Measurement of noise in the environment using different instruments
2. Measurement of ambient noise levels in the audiometric rooms
3. Administer puretone and speech audiometry to industrial worker
- 4 Counseling industrial workers regarding hearing conservation

### **3.7: SCIENTIFIC ENQUIRY IN SPEECH AND HEARING**

1. Propose at least two research questions based on their clinical experience-(a) Identify. Variables in the above research questions (b) Propose suitable research designs for the above (c) Suggest

appropriate statistical methods for the above (d) Organize and report hypothetical study of anyone of the above.

2. Critically evaluate one of the research articles from journal
3. Use computer statistical methodologies
4. Submission of records.

### **ORGANIZATION AND ADMINISTRATION OF SPEECH AND HEARING CENTERS**

1. Preparation of administrative structure of at least two premier government organizations
2. Listing of government, non-government and private step-ups in the vicinity of their training center
3. Welfare measures available for the disabled in the country, the rules and regulations of Rehabilitation Council of India, ethical issues in the clinical practice.
4. Propose action plan for a minimum of three activities for public education.

**ANNEXURE**

**APPRAISAL FORM**

Name of the trainee : \_\_\_\_\_

Posting duration : From .....200 To .....200

Number of days attended / allotted : \_\_\_\_\_

Name of Supervisor : \_\_\_\_\_

Date : \_\_\_\_\_

Type of work done : Yes / No

Speech Diagnosis : \_\_\_\_\_

Speech Therapy : \_\_\_\_\_

Audiological Evaluation : \_\_\_\_\_

Survey / Field work :

Grade awarded(Circle the appropriate) : A /B /C /D /E

<b><u>Professional and Technical Skills</u></b>	<b><u>Excellent</u></b>	<b><u>Good</u></b>	<b><u>Average</u></b>	<b><u>Poor</u></b>
<ol style="list-style-type: none"><li>1. Interest shown by the student in planning, organizing and implementing therapeutic goals and activities.</li><li>2. Efficiency in providing a clear and relevant informations and feedback to the client and supervisors.</li><li>3. Involvement in case presentations and clinical.</li><li>4. Interaction with the patient.</li></ol>				
<b><u>Assessment and Reporting</u></b> <ol style="list-style-type: none"><li>5. Efficiency in suing formal and informal tests appropriate analysis, interpretation, counseling and recommendations.</li><li>6. Submission of lesson plans and therapy reports on time.</li></ol>				
<b><u>Personal Quality</u></b> <ol style="list-style-type: none"><li>7. Punctual</li><li>8. Inform to the supervisors regarding any change in their schedule</li><li>9. Discipline</li></ol>				

**Remarks if any**

**Supervisor**