THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI-600 032.

REGULATIONS FOR BACHELOR IN AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY (BASLP)

Regulations of the University

In exercise of the powers conferred by Section 44 of The Tamil Nadu Dr. M.G.R. Medical University, Chennai , Act, 1987 (Tamil Nadu Act 37 of 1987), the Standing Academic Board of the Tamil Nadu Dr. M.G.R. Medical University, Chennai, hereby makes the following regulations.

1. SHORT TITLE AND COMMENCEMENT:

These regulations shall be called "The REGULATIONS FOR BACHELOR IN AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY (BASLP) OF THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI".

They shall come into force from the Academic Year 2010 -2011 onwards.

The regulation and syllabi are subject to modifications by the Standing Academic Board from time to time.

2. ELIGIBILITY FOR ADMISSION:

(a) A candidate desiring to join the four year programme leading to the Bachelor in Audiology and Speech Language Pathology (BASLP) Degree course should have passed the HSC / CBSE / ISC or equivalent examination with

i Physics, Chemistry, Biology and Mathematics (or) Physics, Chemistry, Mathematics and Computer Science (or) Physics, Chemistry, Botony and Zoology (or) Physics, Chemistry and Biology subjects taken together at the qualifying examination after a period of 12 years of study.

ii "A pass with a minimum of 35% marks in each Subjects Separately including English for all Categories". (Revised as per 44th SAB held on 15.6.2012)

(b) A candidate shall, at the time of admission, submit to the Head of the Institution, a Certificate of Medical Fitness from an authorized Medical Officer certifying that the candidate is physically fit to undergo the academic course and does not suffer from any disability or contagious disease.

3. AGE LIMIT FOR ADMISSION:

Every candidate should have completed the age of 17 years as on 31st December of the year of admission.

4. ELIGIBILITY CERTIFICATE:

The candidates who have passed any qualifying examination other than the Higher Secondary Course examination conducted by the Government of Tamil Nadu shall obtain an Eligibility Certificate from the University by remitting the prescribed fees along with the filled in Application Form (which can be downloaded from the University website (web.tnmgrmu.ac.in), Mark Sheet, Transfer Certificate and other relevant documents required by the University before seeking admission to any one of the affiliated Institutions.

5. REGISTRATION:

A candidate admitted to the Bachelor in Audiology and Speech Language Pathology (BASLP) Degree Course in any one of the affiliated Institutions of this University shall register his / her name in the prescribed application form for registration duly filled along with the prescribed fee and a declaration in the format, (as in Annexure) to the Controller of Examination of this University through the affiliated Institution within 60 days from the Cut-off date prescribed for Bachelor in Audiology and Speech Language Pathology (BASLP) Degree Course for admission.

6. DURATION OF THE COURSE:

The duration of the Bachelor in Audiology and Speech Language Pathology (BASLP) Degree course shall be Three Academic Years and One Year Internship (4 Years).

7. COMMENCEMENT OF THE COURSE:

The course shall commence ordinarily from 1st August of the Academic Year.

8. COMMENCEMENT OF THE EXAMINATIONS:

Regular Examinations will commence from 1st August and supplementary Examinations will commence from 1st February.

If the date of commencement of the examination falls on Saturday, Sunday or declared Public Holidays, the examination shall begin on the next working day.

9. CUT-OFF DATES FOR ADMISSION TO THE EXAMINATION:

The Candidates admitted upto 30th September shall be registered to take up their 1st year examination during August of the next year.

All kinds of admissions shall be completed on or before 30th September of the academic year. There shall not be any admissions after 30th September even if seats are vacant.

10. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all subjects of study and examinations will be conducted only in English.

11. CURRICULUM:

The Curriculum and the Syllabi for the course shall be as prescribed by the University from time to time.

12. WORKING DAYS IN AN ACADEMIC YEAR:

**Each academic year shall have a total of 250 working days.

The workout for 250 days is as follows:

Sundays - 52
Vacation - 30 [May-2 weeks, Winter-1 week, Study Holidays-1 week]
Second Saturdays - 12
Govt. Holidays - 21

115
-------- 365-115= 250 days **(It is approved by 43rd SAB dt.19.12.11).

13. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATIONS:

(a) No candidate shall be permitted to appear for the University examinations, unless he/she attends the course for the prescribed period and produces the necessary certificate of attendance and satisfactory conduct from the Head of the Institution.

(b) Every candidate is required to put in a minimum of 90% of attendance both in theory and practical separately in each subject for admission to the examination.

(c) A candidate lacking in the prescribed attendance in any subject in theory and /or practical shall not be admitted to the entire examination.

14. CONDONATION OF LACK OF ATTENDANCE

There shall be no condonation of lack of attendance.

15. INTERNAL ASSESSMENT:

(a) A minimum of two written internal assessment examinations shall be conducted in each subject during a semester and the average marks of two examinations shall be taken into consideration for the award of internal marks.

(b) A minimum of two practical examinations shall be conducted in each subject (wherever practical have been included in the curriculum) and the average marks of these two examinations shall be taken into consideration for award of internal marks in practicals.

(c) A candidate failed in any subject in the University examination shall be provided an opportunity to improve his/her internal assessment marks by conducting a minimum of two examinations in theory and two practicals separately.

16. SUBMISSION OF LABORATORY RECORD NOTE BOOKS:

At the time of practical examination, each candidate shall submit to the examiners his / her laboratory note books duly certified by the Head of the Department as a bonafide record of the work done by the candidate.

In practical record shall be evaluated by the concerned Head of the Department (Internal Evaluator) and the practical record marks shall be submitted to the University 15 days prior to the commencement of the theory Examinations.

In respect of failed candidates the marks awarded for record at previous examination will be carried over for the subsequent examination. The candidates shall have the option to improve his performance by submission of fresh records.

17. CARRY-OVER OF FAILED SUBJECTS:

(a) Candidates shall be permitted to undergo study in the second year carrying not more than two University Examination subjects in the first year.

(b) Candidates shall be permitted to undergo study in the third year only after passing all the prescribed subjects of the first year.

However, the candidates are permitted to carry not more than two University Examinations and two internal subjects of the second year.

(c) Candidates shall be permitted to undergo internship only after passing all the subjects.

18. MARKS QUALIFYING FOR A PASS:

A candidate shall be declared to have passed the examination if he/she obtains the following minimum qualifying marks:-

50% of Marks in the University Theory Examination.

50% of Marks in the University Practical Examination.

50% of Marks in Theory, Practical, I.A. & Oral seperately.

19. CLASSIFICATION OF SUCCESSFUL CANDIDATES:

The candidate should have appeared for Theory Practical and Oral Examinations for securing a pass in a subject.

The names of first ten University Rank Holders will be published in the University Website.

20. REVALUATION / RETOTALLING OF ANSWER PAPERS:

There is no provision for revaluation of the answer papers of failed candidates in any examination. However, the failed candidates can apply for retotalling.

21. MIGRATION / TRANSFER OF CANDIDATES:

Migration / Transfer of Candidates from one recognized institution to another recognized institution of this University shall be granted on the following conditions:-

a) All migrations / transfers are subject to the approval of the Vice-Chancellor.

b) Transfer shall be effected only at the beginning of the academic year.

c) The transfer application should be sent through proper channel to the Academic Officer within three months of publications of the results or admission to the course.

d) Transfers shall be effected during any year of study after fulfillment of the regulations of this University.

e) The Vice-Chancellor has been empowered to decide and issue transfer from one college to another college, subject to verification of the vacancy position available in the college

without contravention to the statutory rules of the Central Council and such transfers permitted by the University be placed in the Governing Council for information.

f) The provision of combination of attendance shall be granted to the transfers for admission to the examination of the University on satisfactory fulfillment of the regulations of this University.

22. RE-ADMISSION AFTER BREAK OF STUDY:

As per the University common Regulations for Re-admission after break of study for all courses (As approved by the Standing Academic Board in its XXVI Meeting on 16.12.2003).

23. VACATION:

**Four Weeks in an academic year. **(It is approved by 43rd SAB dt.19.12.11).

24. PATTERN OF QUESTION PAPER FOR UNIVERSITY EXAMINATION:

B.Sc. DEGREE COURSES

Essay	3 x 10 = 30 Marks
Short Notes	8 x 5 = 40 Marks
Short Answers	10 x 3 = 30 Marks
Total	100 Marks

25. AUTHORITY FOR ISSUE OF INTERNSHIP COMPLETION CERTIFICATE:

The Head of institutions shall issue a certificate of successful completion of internship to each candidate after satisfying that the candidate has completed the training programme and has acquired the skills to function independently.

26. AWARD OF DEGREE:

The degree shall be awarded by the University only after the completion or the compulsory internship training for a period of not less than one year.

27. SUBMISSION OF PRACTICAL RECORD BOOKS:

At the time of Practical Examination, each candidate shall submit to the Examiners his/her practical Record Books duly certified by the Head of the Department as bonafide record of the work done by the candidate.

The concerned Head of the Department shall evaluate the Practical Record (Internal Assessment) and the Practical Record shall be presented to the examiner.

Bachelor in Audiology and Speech Language Pathology (BASLP)

28. SCHEME OF EXAMINATION

FIRST YEAR
(250 Working days)*
I BASLP

PAPER	THEORY	
B1.1	Introduction to Human Communication	
B1.2	Speech Language Development and Disorders	PRACTICALS
B1.3	Introduction to Hearing and Hearing Sciences	PRACTICALS
B1.4	Technology and Management for Persons with Hearing Impairments – I	
B1.5	Basic Medical Sciences Related to Speech and Hearing	
B1.6	Psychology Related to Speech and Hearing	

FIRST YEAR – PRACTICALS

PAPER – B1.2	Speech-Language pathology	Speech Language Development and Disorders
PAPER – B1.3	Speech-Language pathology	Introduction to Hearing and Hearing Sciences

Internal Assessment	**Marks**
Theory	20
Practical	20
Log/Record work	10
Total	**50**

MARK SCHEDULE
SCHEME OF EXAMINATION
FIRST YEAR

Theory Subject Title	University Theory Exam		Practical Subject Title	Practical Marks		VIVA		IA	
	Max	Min		Max	Min	Max	Min	Max	Min
Introduction to Human Communication	100	50		-	-	-	-	50	25
Speech Language Development and Disorders	100	50	Speech-Language pathology	100	50	50	25	50	25
Introduction to Hearing and Hearing Sciences	100	50	Audiology	100	50	50	25	50	25
Technology and Management for Persons with Hearing Impairments – I	100	50		-	-	-	-	50	25
Basic Medical Sciences Related to Speech and Hearing	100	50		-	-	-	-	50	25
Psychology Related to Speech and Hearing	100	50		-	-	-	-	50	25

II BASLP

PAPER	THEORY	
B2.1	Speech Language Diagnostic and Therapeautics	PRACTICALS
B2.2	Articulation and Phonological Disorders	
B2.3	Voice and Laryngectomee	
B2.4	Diagnostic Audiology	
B2.5	Technology and Management for Persons with Hearing Impairments – II	PRACTICALS
B2.6	Pediatric Audiology	
B2.7	Basic Statistics and Scientific Enquiry in Audiology and Speech Language Pathology	

SECOND YEAR - PRACTICALS

PAPER – B2.1	Speech-Language pathology	Speech Language Diagnostic and Therapeautics
PAPER – B2.5	Audiology	Technology and Management for Persons with Hearing Impairments – II

MARK SCHEDULE
SCHEME OF EXAMINATION
SECOND YEAR

Theory Subject Title	University Theory Exam		Practical Subject Title	Practical Marks		VIVA		IA	
	Max	Min		Max	Min	Max	Min	Max	Min
Speech Language Diagnostic and Therapeautics	100	50	Speech Language Pathology	100	50	50	25	50	25
Articulation and Phonological	100	50		-	-	-	-	50	25

Disorders									
Voice and Laryngectomee	100	50		-	-	-	-	50	25
Diagnostic Audiology	100	50		-	-	-	-	50	25
Technology and Management for Persons with Hearing Impairments - II	100	50	Audiology	100	50	50	25	50	25
Pediatric Audiology	100	50		-	-	-	-	50	25
Basic Statistics and Scientific Enquiry in Audiology and Speech Language Pathology	100	50		-	-	-	-	50	25

III BASLP

PAPER	THEORY	
B3.1	Fluency and its Disorders	PRACTICALS
B3.2	Neurogenic Language Disorders in Adults	
B3.3	Motor Speech Disorders	PRACTICALS
B3.4	Rehabilitative Audiology	PRACTICALS
B3.5	Noise Measurements and Hearing Conservation	
B3.6	Community Oriented Professional Practices in Speech Language Pathology and Audiology	

THIRD YEAR - PRACTICALS

PAPER B3.1	Speech-Language pathology	Fluency and its Disorders
PAPER B3.3		Motor Speech Disorders
PAPER B3.4	Audiology	Rehabilitative Audiology

MARK SCHEDULE
SCHEME OF EXAMINATION
THIRD YEAR

Theory Subject Title	University Theory Exam		Practical Subject Title	Practical Marks		VIVA		IA	
	Max	Min		Max	Min	Max	Min	Max	Min
Fluency and its Disorders	100	50	Speech Language Pathology	100	50	50	25	50	25
Neurogenic Language Disorders in Adults	100	50		-	-	-	-	50	25
Motor Speech Disorders	100	50	Speech Language Pathology	100	50	50	25	50	25
Rehabilitative Audiology	100	50	Audiology	100	50	50	25	50	25
Noise Measurements and Hearing Conservation	100	50		-	-	-	-	50	25
Community Oriented Professional Practices in Speech Language Pathology and Audiology	100	50		-	-	-	-	50	25

MARK SCHEDULE
SCHEME OF EXAMINATION
FIRST YEAR

S. No.	Subjects	Internal Assessment (IA)		Theory		Practical		Viva Voice	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	Introduction to Human Communication	50	25	100	50	-	-	-	-
2.	Speech Language Development and Disorders	50	25	100	50	50	25	50	25
3.	Introduction to Hearing and Hearing Sciences	50	25	100	50	50	25	50	25
4	Technology and Management for Persons with Hearing Impairments – I	50	25	100	50	-	-	-	-
5	Basic Medical Sciences Related to Speech and Hearing	50	25	100	50	-	-	-	-
6	Psychology Related to Speech and Hearing	50	25	100	50	-	-	-	-

FIRST YEAR - PRACTICALS

PAPER – B1.2	Speech-Language pathology	Speech Language Development and Disorders
PAPER – B1.3	Speech-Language pathology	Introduction to Hearing and Hearing Sciences

MARK SCHEDULE

SCHEME OF EXAMINATION
SECOND YEAR

S. No.	Subjects	Internal Assessment (IA)		Theory		Practical		Viva Voice	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	Speech Language Diagnostic and Therapeautics	50	25	100	50	50	25	50	25
2.	Articulation and Phonological Disorders	50	25	100	50	-	-	-	-
3.	Voice and Laryngectomee	50	25	100	50	-	-	-	-
4	Diagnostic Audiology								
5	Technology and Management for Persons with Hearing Impairments - II	50	25	100	50	50	25	50	25
6	Pediatric Audiology	50	25	100	50	-	-	-	-
7	Basic Statistics and Scientific Enquiry in Audiology and Speech Language Pathology	50	25	100	50	-	-	-	-

SECOND YEAR - PRACTICALS

PAPER – B2.1	Speech-Language pathology	Speech Language Diagnostic and Therapeautics
PAPER – B2.5	Audiology	Technology and Management for Persons with Hearing Impairments – II

MARK SCHEDULE
SCHEME OF EXAMINATION

THIRD YEAR

S. No.	Subjects	Internal Assessment (IA)		Theory		Practical		Viva Voice	
		Max	Min	Max	Min	Max	Min	Max	Min
1.	Fluency and its Disorders	50	25	100	50	50	25	50	25
2.	Neurogenic Language Disorders in Adults	50	25	100	50	-	-	-	-
3.	Motor Speech Disorders	50	25	100	50	50	25	50	25
4	Rehabilitative Audiology	50	25	100	50	50	25	50	25
5	Noise Measurements and Hearing Conservation	50	25	100	50	-	-	-	-
6	Community Oriented Professional Practices in Speech Language Pathology and Audiology	50	25	100	50	-	-	-	-

THIRD YEAR - PRACTICALS

PAPER B3.1	Speech-Language pathology	Fluency and its Disorders
PAPER B3.3		Motor Speech Disorders
PAPER B3.4	Audiology	Rehabilitative Audiology

FIRST YEAR

B 1.1 INTRODUCTION TO HUMAN COMMUNICATION

(100+50 marks) (Total = 75hrs)

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

1. Human communication, processes involved in communication
2. Interrelation between Hearing, Speech and Language
3. The neurological, psychological, social and acoustic bases of communication
4. Concept Of Linguistics. Branches Of Linguistics.

Unit 1 **(15 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 component
   - · 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 **(15 hrs)**

1. Nervous system:

Divisions and functions of the nervous system, nerve cell, receptors and synapse, types of nerve fibers. Peripheral nervous system. Brief description of spinal cord and CSF.

Structure of the brain and divisions: general and lobes of cerebrum. Reticular formation, Basal ganglia and cerebellum. Reflex action and common reflexes. Cranial nerves, distribution and supply with the special reference to II , V, VII , IX, X, XII., Nerve tracts (motor and sensory), Brodmann's area, anatomy of the nervous system related to speech and language.

Unit 3 **(15 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)
- Exchange of gases in the lungs and tissues. Hypoxia, asphyxia and cyanosis. Regulation of respiration. Respiratory efficiency test.

Unit 4 **(15 hrs)**

1. Basic Acoustics of speech:

- Waves – What is a wave? Progressive waves – sound waves – wave propagation

Doppler effect – reflection, diffraction, interference, absorption. Resonance of a mass spring vibrator – standing waves – partials, harmonics and overtones – Acoustics impedance – Helmholtz resonator – sympathetic vibrations.

2. Mechanism of speech and language production- II

- Anatomy and physiology of laryngeal system (including Doppler Effect)
- Development of voice

Bases of pitch and loudness change mechanism

Unit 5 **(15 hrs)**

Mechanism of speech and language production- III

- · Anatomy and Physiology of Articulatory system
- · Development of Articulation
- · Anatomy and Physiology of Resonatory system
- · Phonetics: Definition and Branches. Brief sketch of articulatory, acoustic and auditory phonetics. Classification Of Speech Sounds viz Segmental (consonants and vowels, semi vowels, dipthomgs) and Suprasegmentals (stress, pitch, tone and intonation-) IPA symbols and transcription of sentences of typical speech)

LIST OF BOOKS

Compulsory Reading:

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

Additional / Optional Reading:

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

B 1.2 SPEECH - LANGUAGE DEVELOPMENT AND DISORDERS

(100+50 marks) (Total = 75 hrs)

Objectives

After studying this paper at the end of the year, the student should be able to understand the following:

· Development of speech & language

· Identify different speech & language disorders

· Basics of assessment and intervention for Child language disorders.

Unit 1 **(15 hrs)**

Development of speech and Language:

Development of language

· Semantics: A brief introduction to different types of meaning homonyms, synonyms and antonyms.

· Phonology :

· Morphology: Morpheme – bound and free, process of word formation, content and function words.

· Syntax: grammatical and syntactic categories, sentence types, Syntactic analysis.

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

Unit 2 **(15 hrs)**

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

Developmental issues in communicative development – genetic, neurological, medical, behavioural, social and psychological.

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

Unit 3 **(15 hrs)**

Definition, Etiology, Characteristics, Classification and Impact of

- · Hearing Impairment
- · Mental Retardation
- · Cerebral Palsy
- · Seizure disorders

Introduction to assessment procedures, differential diagnosis and management.

Unit 4 **(15 hrs)**

Definition, Etiology, Characteristics and classification of

- · Autism Spectrum Disorders/Pervasive Developmental Disorders
- · Attention Deficit Disorder/ Attention Deficit Hyperactive Disorder
- · Multiple disabilities

Introduction to assessment procedures, differential diagnosis and management.

Unit 5 **(15 hrs)**

Definition, Etiology, Characteristics, Classification and Impact of

- · Specific Language Impairment
- · Learning Disability
- · Acquired aphasias in childhood
- · Traumatic Brain Injury
- · Multiple disabilities

Introduction to assessment procedures, differential diagnosis and management in brief **(5 hrs)**

LIST OF BOOKS

Compulsory Reading:

1. Reed, V. (1994). An Introduction to children with language disorders. (2nd Ed.) New York: Macmillan.
2. Nelson N. W (1998). Childhood language disorders in context – infancy through adolescence, Allyn and Bacon, Boston.
3. Hegde, M. N. (1996). A Coursebook on Language Disorders in Children. San Diego: Singular Publishers.
4. Ladefoged P. (1992). A course in Phonetics. (3rd Ed.). New York: Harcourt Brace Jovanovich.
5. Lees, J.A. and Urwin, S. (1991): Children with Language Disorders. Whurr Publishers

Additional/Optional Reading:

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

B 1.3: INTRODUCTION TO HEARING & HEARING SCIENCES

(100+50 marks) (Total = 75 hrs)

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· Basic aspects of auditory system

· Physical and psychophysical basis of sound

· Causes of hearing loss

· Procedures involved in clinical testing – tuning fork tests, AC and BC testing in pure tone audiometry, clinical masking

Unit 1 **(03 hrs)**

· Origin of Audiology

· Its growth & development (since World War II)

· Its growth in India

· Scope of Audiology

· Branches of Audiology

Unit 2 **(25 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.

· Role of anatomy and physiology in hearing (threshold concept, binaural hearing, head shadow, pinna shadow effect, MAF, MAP – Curve for threshold of hearing) & in understanding causes of hearing impairment.

Unit 3 **(10 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 sonograph; computation of relative loudness of two given sounds using these graph. Frequency and intensity, their psychological correlates: dL for frequency and intensity.

Unit 4 **12 hrs)**

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

Unit 5 **(25 hrs)**

· Tuning fork tests (Rinne, Weber, Bing, Schwabach), interpretation, merits & demerits.

· Pure Tone audiometry: Need and scope, Instrumentation, Standards, Permissible ambient noise levels for audiometric testing, Different types of transducers,Basic concepts of AC & BC testing procedures, Theories of bone conduction, Precautions to be taken while testing, Sound field & closed field testing, Factors affecting AC & BC testing, Screening Vs Diagnostic pure tone testing. Interpretation of audiograms, Classification of audiograms, Calibration: Biological and instrumental for AC & BC transducers.

· 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 conductive hearing loss.

Fusion Inferred Test (FIT)

· Orientation to speech audiometry

LIST OF BOOKS

Compulsory Reading:

1. Hodgson, H.R. (1980) Basic Audiologic Evaluation, London Williams and Wilkins.

2. Martin, F.N. (1991), Introduction to Audiology, IV Edition, New Jersey: Prentice Hall.

3. Newby, H.A. (1985), Audiology, New York: Appletion-Century-Crofts.

4. Testing, interpretation and recording - ISHA Battery (1990). ISHA publication.

5. The Science of sound – Thomas D. Rossing, Addion – Wasloy Publishing Company

6. Architectural Acoustics. Egan, M. D. Mc Graw Hill Inc, (1988)

7. Bess and Humes (1990) Audiology - Fundamental. Williams and Wilkins, London.

8. Davis and Silverman, (Latest Edition). Hearing and deafness. Holt, Rineheart & Winston,London.

9. Rose, D.M. (Ed.) 1978), Audiological Assessment, New Jersey: Prentice Hill.

10. Speaks Charles. Introduction to Sound.

11. Yost, William. (2000). Fundamentals of Hearing. 4th edition.

12. Durrant, J. and Lovrinic, J. (1995). Bases of Hearing Science. 3rd edition.

Additional Reading:

1. Beagley, H.A. (Ed.) (1981). Audiology and Audiological Medicine. Vol.1, Oxford University Press.

2. Relevant BIS documents & ANSI Document

3. Stach – Clinical Audiology

4. Gelfand – Diagnostic Audiology

B.1.4 TECHNOLOGY AND MANAGEMENT FOR PERSONS WITH HEARING IMPAIRMENT – I

(100+50 marks) (Total = 75 hrs)

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· Basics of electricity, electronics and digital processing

· Transducers

· Basic components and types of hearing aids

· Ear moulds

Unit 1 **(15 hrs)**

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

1. Basics of electricity & electronics - Direct and alternating current, DC Power supplies, voltage stabilizers, Passive circuit elements, transistors. Linear and digital Integrated circuits, microprocessors. Micro computers and Computers. Filters, Linear and non-linear Amplifiers and Oscillators, Amplifier power and distortion.

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

Unit 2 **(15 hrs)**

1. Microphones as transducers. Velocity microphones. uni-directional microphones Microphone impedance and sensitivity. Loudspeakers as transducers. Structure of a dynamic loudspeaker. Air suspension. Baffles and enclosures. Horn speakers. Multispeaker systems. Loudspeaker Efficiency, Loudspeaker power and distortion. Recording and Reproduction of sound. Recording characteristics. Dynamic Range, Stereophonic recording. Magnetic tape recording and playback. Tape speed and frequency response, Bias and equalization, Tape noise, Digital Tape recording, CD ROM recording.

2. Measuring Instruments - Multi-meter. Cathode ray oscilloscope. Sine wave generator.

Function Generator, Frequency counter, Measuring microphones, Sound Level Meter, Integrated Sound Level Meter, Artificial ear, Artificial Mastoid, Couplers, Hearing aid test box, Measurement of different types of sound.

Unit 3 **(15 hrs)**

a) Historical development of hearing aids Non-electrical hearing aids, Electric hearing aids

b) Introduction to hearing aid technology: Parts of hearing aids & their functions, Basic elements of hearing aids: Microphone, Amplifier, Receiver, Cords, Batteries, ear moulds.

Unit 4 **(15 hrs)**

• Classification of hearing aids. Type of hearing aids, their advantages and limitations:

-Body level, ear level (BTE, ITE, ITC, CIC).

-Monaural Vs Binaural Vs Pseudobinaural.

-AC and BC hearing aids.

• Classroom amplification devices; Group amplification systems– hard wired, induction loop, FM, infrared rays.

Unit 5 **(15 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,

· 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. Solar Charger and its specifications.

LIST OF BOOKS

Compulsory Reading:

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

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

3. Basic Electronics: A text-lab manual; Paul B Zbar, Albert, P. Malvino. (5th Edn), Mc Graw Hill Inc, (1983)

4. Hearing aid assessment and use in Audiologic Habilitation. (3rd ed.). William Hodgson (Ed.)

5. Audiologist's desk reference.

6. Hearing Aids: Standards, Options and Limitations. Michael Valente.

7. Audiologic Treatment. Michael Valente, Hosford-Dunn, Roeser.

8. Hearing Instrument Technology for the hearing healthcare professional. A. Vonlanthen.

Additional Reading:

1. Loavenbruck All and Madell IR (1981), Hearing aid dispensing for audiologists: A guide for clinical service. New York: Grune and Stratton.

2. Bess et al (1981). Amplification in Education, Alexander Graham Bell Association for the Deaf, Washington.

3. Hull, R.H. (1982). Rehabilitation Audiology, New York: Grune and Stratton.

4. Donnelly K (1974), Interpreting hearing aid technology, CC, Thomas, Springfield.

5. Markides A (1977) Binaural hearing aids, Academic Press Inc., London.

6. Hodgson HR and Skinner (PH) (1977, 1981), Hearing aid Assessment and use in audiologic habilitation, Williams and Wilkins, Baltimore.

7. Cooper (1991), Practical aspects of Audiology: Cochlear implants: A practice guide. Whurr Publisher, London.

8. Mueller HG, Hawkins DB., Northern JL. (1992), Probe microphone measurements: Hearing aid selection and assessment, Singular publishing group. Inc., California.

9. ANSI & IEC Specifications

B 1.5 Basic Medical Sciences related to Speech & Hearing

(100+50 marks) (Total = 75 hrs)

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· Basic anatomy and physiology related to speech and hearing

· Basic neurological, genetic issues related to speech and hearing

· General diseases/conditions related to speech and hearing disorders

Unit 1 (15 hrs)

(a) General introduction, definitions, Coronal / saggital / plane) Planes. Definition of anatomy, morphology, physiology, histology, embryology.

(b) Definition of Cell and organelles, tissue, organ system, specialized tissues like nervous tissue, vascular tissue, muscle and bone tissue.

(c) Nervous system: Definition of neuron, synapse, reflex action, bio electrical phenomena, action potential, depolarisation, division and functions of the nervous system, brain – general lobes, reticular formations, basal ganglia, cerebellum, circle of willis, cranial nerves, spinal cord, CSF – formation & flow.

(d) Circulatory system: Definition of capillaries, arteries, veins, cardiac cycle, blood brain barrier, aneurysm, vascular shock – its reference to aphasia / speech disorders.

(e) Respiratory system: General outline, detailed study of trachea, larynx and nasopharynx,mechanism of respiration – internal and external influence, nervous control – vital capacity – tidal volume, residual air, artificial respiration (in brief).

Unit 2 (15 hrs)

(a) Definition of inflammation, infection, tumor – benign & malignant, tissue healing.

(b) 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).

(c) Endocrine system: Definition of harmone, functions of thyroid hormone, growth harmone, androgen, testosterone and its influence in voice disorders.

Unit 3 (15 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 (15 hrs)

(a) Anatomy & Physiology of pharynx & oro-peripheral structures 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 (15 hrs)

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

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

LIST OF BOOKS

Compulsory Reading:

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

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

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

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

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

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

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

Inderbeer Singh (1996) – Text book of embryology.

Additional / Optional Reading:

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

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

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

B.1.6 PSYCHOLOGY RELATED TO SPEECH AND HEARING

(100+50 marks) **(75 hrs.)**

Objectives After studying this paper at the end of the year, the student should be able to understand the following:-

· Developmental Psychology

· Psychology of learning

· Neuro-Cognitive issues in the field of speech and hearing

Unit 1 **(15 hrs.)**

· Introduction to psychology – Definition, History and perspectives, Branches and scope, application of psychology in the field of speech and hearing.

· Introduction to Clinical Psychology – Definition, perspectives and models of mental disorders.

· Disorders of infancy, childhood and adolescence association with hearing and speech and language disorders – Mental Retardation, Learning Disorders, Communication Disorders, Attention Deficit Hyperactivity Disorder, Conduct Disorders.

Unit 2 **(15 hrs)**

· Psychology of learning – Introduction, Definition of learning, Theories of learning, Classical conditioning, Operant conditioning and Social learning.

· Application of learning theories in the field of speech and hearing (therapeutic, educational and rehabilitative applications).

Unit 3 **(15 hrs)**

· Cognitive Psychology – Introduction, Definition and theoretical perspectives (David Rumelhart and David Mc Clelland, Noam Chomsky, George Miler, Allan Newell). Applications of cognitive psychology in the field of speech and hearing.

· Intelligence – definition, theories and factors affecting intelligence

· Neuropsychology – Introduction, definition, principles of neuropsychological assessment, diagnosis and rehabilitation.

· Applications of neuropsychology in the field of speech and hearing.

Unit 4 **(15 hrs)**

· Psychodiagnostics – Case history taking, Mental status examination, behavioural analysis, psychological testing.

· Play as a therapeutic tool

· Counselling – Meaning and definition, types of counseling, Counseling in rehabilitation practice.

Unit 5 **(15 hrs)**

· Developmental Psychology – Introduction, definition, principles, motor development, emotional and social development

· Cognitive development – definition, Piget's Theory

· Personality Development – Introduction, theories, hallmarks of the well adjusted personality,

hazards in personality development.

LIST OF BOOKS

Compulsory Reading:

1) Hurlock, E.B. (1981).Child development VI Ed. McGraw Hill International Book Co.

2) Morgon C.T., King, R.A., Robinson N.M. Introduction to Psychology. Tata McGraw Hill Publishing Co.

3) Coleman J.C. Abnormal Psychology and Modern Life, Taraporevala Sons & Co.

4) Cognitive Neuro-Science of Development by Michalle de Hank & Mark H. Johnson

5) Application of Counselling in Speech-Language Pathology and Audilogy – Thomas A. Crowe, Acc. No. 12917, 6.8.5506

6) Counseling Individual with Communication Disorders. Psychodynamic approach and Family aspects, 2nd Edition, Walles J. Rollin, Acc. No. 15706, 616.855.

Additional/Optional Reading:

1) Siegal M.G. (Ed.), (1987). Psychological Testing from Early Childhood Through Adolescence. International Universities Press.

2) Kline, P. (1993). The Handbook of Psychological Testing, Routledge.

3) Anastasi, A. (199). Psychological testing, London: Freeman

B 1.7 Clinical Practicum Speech Language Pathology

(50+50 marks)

To include IPA for normal samples

To include tests: LPT, PAT, Reynell's scale, LST - cognitive prerequisites for language learning

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

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

1. Observation of therapy of 10 clients with speech language disorders.

2. Observation of a minimum of 5 diagnostic clients and 5 therapy clients

3. Developing therapy material specific to 10 clients they have observed

Writing of observation reports of the above Maintenance of a clinical diary

CLINICAL PRACTICUM IN AUDIOLOGY

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

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

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

4. Under going pure-tone audiometry. Becoming familiar with different types to sound stimuli used for assessment of hearing and sound generator software's.

5. Identifying the different types of audiometer (at least 1 portable and 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. Stud the same and report the status of the same.

6. Preparing 0 dB HL equivalent chart with different earphone/ear cushion combination.

7. Obtain audiograms of 10 normal subjects.

8. Observations / Participation during audiological evaluation on a variety of cases under supervision. Plot the audiograms; calculate of Inter-aural attenuation, Occlusion effect.

9. Obtaining audiograms under supervision on 20 adults clients (AC & BC)

10.Obtaining audiograms with masking (5 cases)

11.Classify audiograms as per : nature of hearing loss

- Nature of hearing loss
- Degree of hearing loss

Contour of audiograms

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

SECOND YEAR

B.2.1 SPEECH LANGUAGE DIAGNOSTICS AND THERAPEUTICS

(100+50 marks) **(Total = 75 hrs)**

Objectives

After studying this paper at the end of the year, the student should be able to understand the following –

1. Importance of client history, diagnostics and therapeutic approaches
2. Taking client history and therapy in general
3. Will get theoretical backup for clinical documentation

A. Speech language diagnostics

Unit 1 **(7hrs)**

1. Basic terminologies and concepts

· Introduction to diagnostics

· Terminologies in the diagnostic process

· General principles of diagnosis

· Diagnostic setup and tools

Unit 2 **(18hrs)**

1. Diagnostic approaches and methods

· Client history – definition, description, utility & need. Essential factors to be included in the client history form – comparison of adults vs. children's history – usefulness of the client history

· Approaches to diagnosis – importance of diagnosis in client history, essential factors to be included according to the conditions/disorders. Methods of taking 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 observation, diagnosis by exclusion, diagnosis by treatment,instrumental diagnosis, provocative diagnosis, provisional diagnosis;

advantage/disadvantages

· Team approach to diagnosis

· Characteristics of a good clinician as diagnostician

B. Speech therapeutics

Unit 3 **(15 hrs)**

1. Basic concepts of therapeutics

· Terminologies in speech therapeutics

· General principles of speech and language therapy

· Speech therapy set-up

· Types of speech and language therapy

· Individual and group therapy

· Integrated and inclusive education

Unit 4 **(19 hrs)**

1. Procedures for speech-language therapy

· Approaches to speech and language therapy – formal, informal and eclectic approaches

· Planning for speech and language therapy – goals, steps, procedures, activities

2. 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 **(16hrs)**

1. Clinical documentation and professional codes

· Documentation of diagnostic, clinical and referral reports

· Introduction to parent counseling, facilitation of parent participation and transfer of skills, follow-up

· Evaluation of therapy outcome

· Ethics in diagnosis and speech language therapy

· Self-assessment and characteristics of a clinician

LIST OF BOOKS

Compulsory Reading:
1. Meyer, S.M. (1998). Survival guide for the beginning speech-language clinician. Maryland: Aspen Publishers.
2. Owens, R.E. (1999). Language disorders: Functional approach to assessment and intervention. Boston: Allyn & Bacon Inc.
3. Tomblin, E. et.al. (1994). Diagnosis in Speech language pathology. San Diego: Singular Publishing Inc.
4. Shipley, K.G., 7 Mcafer, J.G. (1998). Assessment in speech language pathology: A resource manual. San Diego: Singular Pub Inc.
5. Klein, H.B., & Nelson, M. (1994). Intervention planning for children with communication disorders: A guide for clinical practicum and professional practice. New Jersey. Prentice Hall.

Additional / Optional Reading:
1. Frattali, C.M. (1998). Measuring outcomes in Speech Language Pathology. New York:Thieme.
2. Shames, G.H. (2000). Counselling the communicatively disabled and their families. Boston: Allyn & Bacon.
3. Hegde, M.N. (1985).Treatment procedures in communicative disorders.Texas. Pro Ed.
4. Darley, F.L., & Spriesterbach (1978). Diagnostic methods in Speech Pathology. San Diego: Singular Pub Inc.
5. Leith, W.R. (1993). Clinical methods in communicative disorders. Texas. Pro. Ed.

B 2.2 ARTICULATION AND PHONOLOGICAL DISORDERS

(100+50 marks) **(Total = 75 hrs)**

After studying this paper at the end of the year, the student should be able to understand the following –

· Development of phonology
· Factors related to articulation and phonological disorders
· Assessment and therapy procedures

Unit 1 **(20hrs)**

1. Review of phonological development and articulatory mechanism
2. Fundamentals of Articulatory phonetics
3. Definition and types of coarticulation
4. Supra segmental aspects
5. Transcription methods in perceptual analysis
6. Phonological processes – types, language specific issues, identification and classification of errors
7. Distinctive features – types, language specific issues, identification of errors and analysis.
8. Acoustic aspects of production and perception of speech sounds; use of spectrograms

Unit 2 **(15 hrs)**

1. Factors related to articulation and phonological disorders:
Structural
Cognitive – Linguistic
Neurological
Psychosocial
Social
Metalinguistic
2. Transcription methods in perceptual analysis
3. Phonological processes – types, language specific issues, identification and classification of errors.
4. Distinctive features – types, language specific issues, identification of errors and analysis.
5. Acoustic aspects of production and perception of speech sounds; use of spectrograms

Unit 3 Oral anomalies / abalations **(20 hrs)**

Cleft lip and palate:
1. Etiological factors
2. Developmental biology of the face and palate
3. Syndromes – Pierre – Robin's, Treacher – Collin's, Crouzon's diease
4. The velopharyngeal mechanism muscles and functions
5. Types of cleft lip and palate
6. Classification systems
7. Team management composition, responsibilities, co-ordinator
8. Speech and language problems of individuals with cleft
9. Associated problems of individuals with cleft hearing, dental, psychosocial,physical.
10. diagnostic procedures and instruments used in assessment of speech.
11. Treatment Concepts – Surgical repair of cleft lip, palate and velopharynx (outline)
12. Treatment procedures for speech.
13. Prosthetic speech appliances for patients with cleft palate.

Glossectomy
1. Effect of partial and total glossectomy on speech
2. Characteristics of glossectomy speech
3. Rehabilitation of speech
4. Prosthetic fitting, design, assessment
5. Effects on swallow
6. Rehabilitation of swallow

Unit 4 **(10 hrs)**

Assessment procedures: Types of assessment, sampling procedures, scoring procedures, criteria for selection of instruments for assessment.
Assessment of Oral peripheral mechanism
Speech sound discrimination, stimulability and oral stereognosis
Analysis and interpretation of data:
Intelligibility and severity judgments
Normative data
Error patterns.
5. Characteristics of disordered phonology and differential diagnosis

Unit 5 **(10 hrs)**
Intervention: Stages of treatment and measuring improvement, long term goals, short term goals and activities for achieving goals in cases with misarticulation.
Issues in maintenance and generalization.
Team approach and professional communication (inter, intra professional and client oriented)
Approaches to treatment: motokinesthetic, traditional approaches integral stimulation, phonological, distinctive feature, minimal contrast therapy, learning theories, programmed, paired – stimuli.
Computerized intervention packages, metaphon therapy

LIST OF BOOKS
Compulsory Reading:
1. Bernthal, J.E. and Bankson, N.W. (1988).Articulation and Phonological Disorders. (3rd Ed.). New Jersey: Prentice Hall Inc.
2. Weiss, C.E., Lillywhite, H.S. and Gordon, M.E. (1980). Clinical Management of Articulation
Disorders. St. Louis: C.V. Mosby
3. Creaghead, N.A., Newman, A.W. and Secord, W.A. (1989). Assessment and remediation of articulatory and phonological disorders. (2nd Ed.). New York: Macmillan
Additional/Optional Reading:
4. Johnson, J.P. (1980). Nature and Treatment of Articulation Disorders. Springfield: Charles C. Thomas.

B.2.3 VOICE AND LARYNGECTOMY

(100+50 marks) **(Total = 75 hrs)**
Objectives:
After studying this paper at the end of the year, the student should be able to understand the following:–
· Characteristics of voice and its disorders
· Laryngeal abnormalities
· Assessment and Management

Unit 1 **(15 hrs)**

Characteristics of normal voice: Physiological, acoustical and aerodynamic correlates
Development: Birth to senescence; including age-related changes
Theories of phonation
Classification of abnormal voice
Voice disorders in other conditions:
Voice disorders related to resonatory problems
Voice problems in conditions like Hearing impairment and deaf blind
Voice problems in Endocrine disorders

Unit 2 **(15 hrs)**

Etiology, incidence, prevalence, signs and symptoms of:
Organic voice disorders: Laryngeal cancer also to be included here
Non-organic voice disorders: eg: Functional disorders (Psychosomatic-Functional aphonia and physiological- voice abuse)
Congenital voice disorders
Neurological voice disorders

Unit 3 **(15 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 **(15 hrs)**

Laryngectomy:
· Types and characteristics of laryngeal surgery
· Assessment of a laryngectomee and associated problems
· Management of 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 **(15 hrs)**

1. Medical/Surgical procedures in the treatment of voice disorders
2. Voice therapy – various techniques
3. Professional voice users: Definition, types, characteristics, importance of vocal hygiene and professional voice care

LIST OF BOOKS

Compulsory Reading:

1. Boone, D.R. & McFarlane, S. C (1994): The Voice and Voice Therapy. (Fifth Ed.). Englewood Cliffs, Prentice-Hall, Inc. New Jersy.

2. Prater, R.J. and Swift, R.W. (1984): Manual of Voice Therapy. Little, Brown and Co,Boston.

3. Andrews . M.L. (1995): Manual of Voice treatment, Singular publishing group, San Diego.

4. Doyle, P C (1994) Foundation of voice and speech rehabilitation following laryngeal cancer. Singular publishing group. San Diego.

Additional/Optional Reading:

5. Brown. W.M.s. and others (1996) (ed): Organic voice disorders. Singular publishing group, Sandiego.

6. Joseph, C Stemple Leble, E Glaze, Bernick K Gerdeman. Clincial voice pathology. Theory & Management (II Edition)

7. Aronson, A.E. (1990): Clinical Voice Disorders, New York: Thieme, Inc.

8. Greene, M.C.L. and Mathieson, L. (1989): The Voice and Its Disorders. Whurr publications, London.

9. Case, J.L. (1991): Clinical Management of Voice Disorders, Pro-Ed, Austin.

10.Fawcus, M. (Ed.) (1991): Voice Disorders and Their Management. Singular Publishing. Group. San Diego

11.Salmon, S.J. and Mount, K.H. (Eds.) (1991): Alaryngeal Speech Rehabilitation. Prof-Ed.Austin.

12.Keith, R L & Darley (III Edition) Laryngectomee rehabilitation. Pro. Ed.Austin

B 2.4 : DIAGNOSTIC AUDIOLOGY

(100+50 marks) **(Total = 75hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· need for test battery approach
· indications for administering different audiological tests
· procedures for identifying an individual with pseudohypacusis
· administration and interpretation of tests for APD

Unit 1 **(12 Hours)**

1. Introduction to Diagnostic Audiology:

· Need for test battery approach in auditory diagnosis & integration of results of audiological tests.

· Indications for administering audiological tests to identify Cochlear pathology, Retrocochlear pathology, functional hearing loss, Central-processing disorders.

2. Tests to differentiate between cochlear & retro-cochlear pathology 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. Speech discrimination tests with and without the presence of noise. Filtered speech tests and time compressed speech tests.

Social Adequacy Index

· ABLB, MLB
· SISI
· Test for adaptation
· Bekesy Audiometry
· Brief tone audiometry

Unit 2 **(18 Hours)**

3. Immittance Audiometry

· Introduction, Principle of Immittance audiometry, Instrumentation,
· Tympanometry – Tympanometric peak pressure, static immittance, gradient/tympanometric width.
· Reflexometry – Ipsilateral & contralateral acoustic reflexes, special tests
· Clinical application of Immittance evaluation

Unit 3 **(20 Hours)**

4. Auditory Brainstem Response

· Introduction & classification of AEPs, Instrumentation, Test procedure, factors affecting Auditory Brainstem Responses, Interpretation of results & clinical application,
· ECOG, early response
· Middle & Long latency auditory evoked potentials – test procedure, factors affecting
· MLR & LLR, Interpretation of results & clinical application.

Unit 4 **(10 Hours)**

5. Otoacoustic Emissions

Introduction, classification of OAEs, Instrumentation, measurement of OAE procedure, interpretation of results & clinical applications.

6. Tests to detect Pseudohypoacusis

· Pure tone tests including tone in noise test, Stenger test

· Speech tests including Lombard test, Stenger test, Lip-reading test, Doefler-Stewart test.

· Identification of functional hearing loss

7. Vestibular testing

Unit 5 **(15 Hours)**

8. Central Auditory Disorders

(a) Definition, terminologies used, incidence & causes, indications for administration of CAD

test, rationale for CAD tests.

(b) Tests to detect Central Auditory Disorders

· Monoaural low redundancy tests

· Filtered speech tests

· Time compressed speech tests

· Speech-in-noise test

· SSI with ICM

· Other monoaural low redundancy tests

(c) Dichotic speech tests

· Dichotic digit test

· Staggered spondaic word test

· Dichotic CV test

· SSI with CCM

· Competing sentence test

· Other dichotic speech tests

(d) Binaural interaction tests

· RASP

· Binaural Fusion Test (BST)

· MLD

· Other binaural interaction tests

(e) Temporal ordering tasks

· Pitch pattern test

· Duration pattern tests

· Other temporal ordering tests

(f) Variables influencing Central Auditory Assessment

· Procedural variables

· Subject variables

(g) Test findings in subjects with central auditory disorders

· Brainstem lesion

· Cortical & hemispheric lesion

· Interhemispheric dysfunction

· CAPD in children
· CAPD in elderly
(h) Other special test – Minimal auditory capability test, SPIN, HINT, CST.

LIST OF BOOKS

Compulsory Reading:

1. Hodgson, H.R. (1980) Basic Audiologic Evaluation, London Williams and Wilkins.
2. Martin, F.N. (1991), Introduction to Audiology, IV Edition, New Jersey: Prentice Hall.
3. Martin, H (1987), Speech Audiometry. Whurr Publisher, London
4. Newby, H.A. (1985), Audiology, New York: Appletion-Century-Crofts.
5. ISHA Battery
6. Katz, Handbook of Clinical Audiology 4th/5th edn.
7. Rintleman – Contemporary issues in audiology
Audiologists Desl Ref. Vol. I, by James W. Hall.

Additional Reading:

1. Beagly, H.A. (Ed.) (1981). Audiology and Audiological Medicine. Vol. 1, Oxford University
Press.
2. Bess and Humes (1990) Audiology - Fundamental. Williams and Wilkins, London.
3. Davis and Silverman, (Latest Edition). Hearing and deafness. Holt, Rinehats & Winston, London.
4. Rose, D.M. (Ed.) 1978), Audiological Assessment, New Jersey: Prentice Hill.
5. Relevant IS documents

B 2.5 TECHNOLOGY & MANAGEMENT FOR PERSONS WITH HEARING IMPAIRMENT – II

(100+50 marks) **(Total = 75 hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· importance of early identification
· different methods and approaches to train children with hearing impairment
· educational options for children with hearing impairment
· classification of hearing aids
· setting up of classrooms for children with hearing impairment
· electroacoustic characteristics
· selection of hearing aids

Unit 1 **(15 hrs)**

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

Unit 2 **(15 hrs)**

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

Unit 3 **(15 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 Tracy Clinic, SKI-HI), follow up
· Setting up class rooms for the hearing handicapped, Classroom acoustics
· Preferential seating and adequate illumination

Unit 4 **(15 hrs)**

A) 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
d) EAC of hearing aid along with ear mould.
B) 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
C) Signal processing in hearing aids
BILL, TILL, PILL
Programmable and digital hearing aids
Signal enhancing technology

Unit 5 **(15 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/multiply handicapped
f) Hearing aids for adults & geriatrics: recruiting ears, poor word recognition scores (WRS)
g) Hearing aids for the sightless
h) Procuring hearing aids under various schemes of the Government of India / State

LIST OF BOOKS

Compulsory Reading:

1. Sanders, D. A. (1993). Management of Hearing Handicap; Infants to Elderly, 3rd Ed., New Jersey, Prentice Hall.
2. Tucker, I., & Nolan, M. (1984). Educational Audiology. London: Croom Helm, Chapter.10.
3. Markides A (1977) Binaural hearing aids, Academic Press Inc., London.
4. Hodgson HR and Skinner (PH) (1977, 1981), Hearing aid Assessment and use in audiologic habilitation, Williams and Wilkins, Baltimore.
5. Pollack M. (1980). Amplification for the hearing impaired. NY: Grune and Stratton.
6. Skinner HW (1988), Hearing aid evaluation, Prentice Hall, Englewood Cliffs, HJ.
7. Audiologist's desk reference.
8. Hearing Aids: Standards, Options and Limitations. Michael Valente.
9. Audiologic Treatment. Michael Valente, Hosford-Dunn, Roeser.

Additional Reading:

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

Materials and Systems for use with the Language Retarded Child. Hong Kong: Somerset Education Authority.
14.Correspondence Program for Parents of the Deaf, John Tracy clinic.
15.Nix, G.W. (1976) Mainstream Education for Hearing-Impaired Children and Youth. New
York: Grune and Stratton Inc.
16.Ross, M. Brackett, D. and Maxon, A.B. (1991). Assessment and management of mainstreamed hearing-impairment children: Principles and practice. Austin: Pro.Ed.
17.Webster, A. & Ellwood, J. (1985). The Hearing-Impaired Child in the Ordinary School. London: Croom Helm.

B 2.6 PAEDIATRIC AUDIOLOGY

(100+50 marks) **(Total = 75 hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· development of auditory system and behaviour
· early identification procedures using subjective and objective measures
· diagnostic tests for the paediatric population

Unit 1 **(15 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 **(15 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 **(15 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
Importance of follow-up.

Unit 4 **(15 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.
c) Factors affecting speech audiometry results in children, BC speech audiometry

Unit 5 **(15 hrs)**

a) Functional hearing loss in children: Signs/symptoms, Tests
b) Central Auditory Processing Disorders in children: Signs/symptoms, Screening tests
c) Use of physiological tests in children
· Immittance audiometry in the pediatric population
· Auditory Brainstem Response in pediatric population
· OAE findings in the pediatric population.

LIST OF BOOKS

Compulsory Reading:

1. Northern, J.L. and Downs, M.P. (1991). Hearing in children. 3rd Ed. Baltimore: Williams and Wilkins.
2. Hayes & Northern (1996). Infants and Hearing
3. McCormick, B. (ed.) (1993) wnd ed. Pediatric Audiology 0-5 yrs.
Valerie Newton (ed) (2003). Pediat Audiological Medicine

Additional Readings:

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

B 2.7 Basic Statistics and Scientific Enquiry in Audiology and Speech Language Pathology

(100+50 marks) **(Total = 75hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following

· The basics of statistics and its relevance to the field of speech and hearing
· Carryout calculations of data related to basic statistical operations
· Interpret statistical results at basic level and make inferences
· Need for scientific enquiry
· Documentation of research

Part A: Basic Statistics **(38Hrs)**

Unit 1 **(6 Hrs)**

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 **(9 Hrs)**

· 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 **(5 Hrs)**

· 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 **(8 Hrs)**

· 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 **(10 Hrs)**

Correlation: Historical contribution; meaning of correlation; types of correlation productmoment correlation, content correlation, rank correlation etc 73 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.

Part B: Research Methods in Audiology and Speech Language Pathology (37Hrs)

Unit 1 (10 Hrs)

· Scientific status of speech language pathology and audiology; speech language pathology and audiology as a behavioural science; 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 hypotheses

Unit 2 (9 Hrs)

· 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 (6 Hrs)

· Sampling methods: types, methods of data collection

· Application of the above with hypothetical illustrations

Unit 4 (6 Hrs)

· Introduction to research methods and designs: Ex post-facto, experimental, standard group comparisons, evaluation research etc.

· Application of these to clinical population and community research

Unit 5 (6 Hrs)

· Documentation of research: Reporting research-organization, analysis and presentation of data

· Components of research article, report writing style

· Ethics of research in behavioural sciences

· Qualities of a researcher/scientific clinician

LIST OF BOOKS

Compulsory Reading:

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

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

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

Additional/Optional Reading:

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

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

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

B 2.8 CLINICAL PRACTICUM IN SPEECH LANGUAGE PATHOLOGY

(50+50 marks)

1. Carry out informal and formal assessment procedures for the following aspects of speech and language (from a normal child – 2 samples)

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. Familiarization of the tools used for evaluation and treatment of Childhood communication disorders, Articulation and Phonological Disorders, Maxillofacial anomalies:

· Receptive Expressive Emergent Language Scale
· Scale for Early communication Skills in Hearing Impaired children
· 3-Dimensional Language Acquisition Test
· Northwest Syntax Screening Test
· Bankson's Language Screening Test
· Test for Examining Expressive Morphology
· Autism 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
· Voice Handicap Index and other perceptual scales .
· Other Indian tests and materials available

3. Presentation of 5 cases of detailed assessment and therapy plans (1 each at least under each category), using information from relevant proformae, tests administered and treatment options

4.

i) Perceptual analysis of 5 normal and 2 abnormal voice disorder samples

ii) Measurement of the following parameters in 5 normal samples and 5 samples with voice disorders:

· Measurement of Fo, Amplitude, Diadochokinetic Rate, Maximum Phonation Duration, s/z ratio, Vital capacity and Mean Air Flow Rate
· Exposure to Electroglottogram and Perturbation measurements using software
· Measures of suprasegmental aspects

5.
· Transcription and analysis of phonological processes in children using IPA
· Familiarization with cerebral palsy assessment, reflex testing
6. Planning and executing a minimum of 5 cases (including child and adult) for approximately
5 sessions each and preparation of the following:
· Carry out baseline evaluation
· Preparation of pre therapy reports
· Develop proficiency in using various therapy techniques for childhood communication disorders, voice disorders, articulation and phonological disorders
· 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
· Being aware of various centers available for rehabilitation (local, national, international)
7. Counselling parents of children with childhood communication disorders, voice disorders, articulation and phonological disorders; Compiling relevant counseling points pertaining to each of the above mentioned disorders
8. Maintaining audio samples used for the practical analysis
9. Practice in writing sample diagnostic and therapy reports (for real/hypothetical cases)
10. Compiling the clinical work done into a clinical work record for submission

B 2.9 CLINICAL PRACTIUM AUDIOLOGY

(50+50 marks)

Section A: Diagnostic Audiology

1. Familiarization of instrumentation for speech audiometry, immittance audiometry, sound field-testing.

2. 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: familiarizing with speech test material in at lest 2 Indian languages, mastering live voice presentation/recorded presentation, administering SAT, SRT, WRS, MCL, UCL, PI/PB function test.

4. Collection of Speech Audiometry test materials in Indian languages.

5. 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. Holistic audiological assessment for differential diagnosis (Cochlear & Retro cochlear):

o Routine pure tone & speech audiometry

o Administering special tests using pure tone: Tone Decay Test, STAT, SISI, ABLB, MLB, SPAR, Test for functional hearing loss.

7. Immittance Audiometry (minimum of 5 cases) – PVT, Tympanometry, Acoustic Reflex testing (ipsi & contra). Interpretation of the findings taking into consideration the ENT reports.

8. Auditory Brainstem Response (ABR) & Oto-Acoustic Emissions (OAE) –

o Preparation of the patient

o Informing the patient/caregiver with respect to the procedure

o Electrode montage

o Conduct the procedure with respect to test protocol (5 cases each)

o BC-ABR, Tone burst ABR

Section B: Rehabilative Audiology

1. Speech and language characteristics of the deaf

2. Management of post-lingual hearing impaired.

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. Counselling parents regarding educational placement of the hearing impaired.

Section C: Paediatric Audiology

1. Informal screening – purpose, materials used, noise makers, their spectral characteristics, procedure (5 normal & 5 hearing impaired children)

2. Sound field testing: BOA, VRA, Play audiometry (5 cases each)

3. Observe auditory response based on video clippings or live case testing.

4. Testing multiply handicapped children.

THIRD YEAR
B 3.1: FLUENCY AND ITS DISORDERS

(100+50 marks) **(Total = 75hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· Characteristics and types of Fluency disorders, specify- Stuttering and Cluttering; Types of Stuttering viz developmental, Neurogenic and Psychogenic

· Theories of stuttering

· Assessment and Management

Unit 1 **(15 Hrs)**

· Fluency: Definition, development of fluency, factors influencing the development

· Definitions of intonation, stress and rhythm- Development of intonation, rhythm, stress – their implications to therapy

· Measures of fluency and other prosodic aspects

Unit 2 **(15Hrs)**

Stuttering: definition, nature, Loci Of stuttering viz Adaptation and consistency effect

· Facts - incidence and prevalence, onset , Heredity, speech language development in individuals with stuttering, role of imitation, socio-economic status and cultural factors Factors which reduce stuttering and factors which increase it. Normal non fluency; primary stuttering; secondary stuttering. Development of stuttering- Van Riper's Tracks and Peter's and Guitar's 5 developmental levels Cluttering and neurogenic stuttering

Unit 3 **(15Hrs)**

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

Unit 4 **(15Hrs)**

· Assessment of stuttering;

· Associated problems

· Differential diagnosis of developmental stuttering, neurogenic stuttering, cluttering, normal non fluency, spasmodic dysphonia

Unit 5 **(15Hrs)**

· Prevention

· Therapy; rationale; prolongation; shadowing; habit rehearsal technique, DAF, masking shock therapy, desensitization, timeout, airflow and modified airflow technique; Group therapy

· Sequence of therapy procedures VIZ -

· MIDVAS and Perkin's Approach

· Transfer and maintenance

· Measurement of progress; naturalness rating

· Relapse and recovery

LIST OF BOOKS

Compulsory Reading:

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

Additional/Optional Reading:

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

B 3.2: NEUROGENIC LANGUAGE DISORDERS IN ADULTS

(100+50 marks) **(Total = 75hrs)**

Objectives:

After studying this paper at the end of the semester, the student should be able to understand the following –

· Brain and language relationship
· Aphasic and non-aphasic conditions
· Assessment and management

Unit 1 **(15Hrs)**

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

Unit 2 **(15Hrs)**

· Definitions of Aphasia
· Etiology
· Classification of aphasia based on anatomical, linguistic and psycholinguistic aspects
· Clinical features: Linguistic, pyscho-social, neuro-behavioural
· Associated problems in aphasia: their definition, classification and clinical features

Unit 3 **(15Hrs)**

· General and specific neurological examination procedures (higher functions, cranial nerves, motor and sensory systems, reflexes and fundus)
· Neurological investigations: Electrophysiological (Electro Encephalo Gram, Evoked potentials) and imaging (Computerized Tomography, Magnetic Resonance Imaging)
· 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 and others; Indian tests

Unit 4 **(15Hrs)**

· Other language disorders in adults: Introduction, Etiology, clinical profile, assessment and management
- Traumatic Brain Injury
- Right Hemisphere Damage Disorder
- Primary Progressive Aphasia
- Language disorders in Dementia

· Differential diagnosis of Adult Neurogenic disorders

Unit 5 **(15Hrs)**

· Intervention: Prognostic indicators, Spontaneous recovery; General principles of therapy; specific techniques (Melodic Intonation therapy, Visual Action therapy, Schuell's Auditory stimulation, Thematic language stimulation, developing functional communication and others.

· 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 counseling AAC

LIST OF BOOKS

Compulsory Reading:

1. Understanding Aphasia. (1993). Goodglass, H. Academic Press Inc.

2. Davis, G. A. (1993). A Survey of Adult Aphasia and Related Language Disorders Prentice Hall Inc.

3. Chapey, R. (1994). (Ed). Language Intervention Strategies in Ault Aphasia. Williams and Wilkins Publication

Additional/Optional Reading:

1. Speech and Language Evaluation in Neurology: Adult Disorders. (1985). Ed. Darby, J. K.Grune and Stratton Inc.

2. Acquired Speech and Language Disorders. (1994). Murdoch, B. E. London: Chapman and Hall.

3. Aphasia and Related Language Disorders. (1990). LaPointe, L. L. Theime Medical Publishers.

B 3.3: MOTOR SPEECH DISORDERS

(100+50 marks) **(Total = 75hrs)**

Objectives:
After studying this paper at the end of the year, the student should be able to understand the following:
· Characteristics of motor speech disorders in children and adults
· Types of dysarthria, Apraxia (Developmental apraxia of Speech) and other conditions in children and adults
· Assessment and Management
Part A: Childhood Motor Speech Disorders (38Hrs)

Unit 1 **(8hrs)**
· Introduction to neuromotor organization and sensorimotor control of speech
o Motor areas in cerebral cortex, motor control by subcortical structures, brainstem, cerebellum and spinal cord.
o Central nervous system and peripheral nervous system in speech motor control.
o Centrifugal pathways and motor control
o Neuromuscular organization and control
o Sensorimotor integration
o Introduction to motor speech disorders in children- Dysarthria and Developmental apraxia of Speech.

Unit 2 **(15 Hrs)**
· Cerebral palsy (11 hrs)
o Definition, causes and classification
o Different types of Cerebral palsy: Can the titled be movement disorders
o Disorders of muscle tone: Spasticity, rigidity, flaccidity, atonia
o Disorders of movement: Hyperkinesias and dyskinesias- Ballismus, tremor, tic disorder, myoclons, athetosis, chorea, dystonia, hypokinesias
o Disorders of coordination- Ataxia
o Neuromuscular development in normals and children with cerebral palsy -
o Reflex profile
o Associated problems
o Speech and language problems of children with cerebral palsy
· Syndromes with motor speech disorders (4 hrs)
o Juvenile progressive bulbar palsy
o Congenital supranuclear palsy
o Guillain- Barre syndrome
o Duchenne muscular dystrophy

Unit 3 **(6hrs)**

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

Unit 4 **(5hrs)**

Apraxia of speech in children or developmental apraxia of speech
o Definition
o Description: verbal and non-verbal apraxia
o Differential diagnosis- dysarthria and other developmental disorders
o Management of developmental apraxia of speech- Facilitation techniques for oral motor movements, speech therapy techniques, generalization of speech

Unit 5 **(4hrs)**

Definition - alternative and augmentative communication (AAC). 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: Adult Motor Speech Disorders **(37Hrs)**

DYSARTHRIA AND APRAXIA

Unit 1 **(12 hrs)**

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

Unit 2 **(7 hrs)**

d) 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 dysarthria.

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

Unit 3 **(6 Hrs)**

f) Management of dysarthria - Medical, surgical and prosthetic approaches - Speech therapy

· 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 **(7 Hrs)**

g) 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 **(5 hrs)**

Dysphagia:

· Definition

· Phases of normal swallow

· Etiology of swallowing disorders

· Assessment and Intervention

· Mechanical dysphagia related to glassectomy

LIST OF BOOKS

Compulsory Reading:

1. Clinical Management of Motor Speech Disorders in Children. (1999). Caruso, F. J. and Strand, E. A. New York: Thieme.

2. Motor Speech disorders - A Treatment guide. (1991). Dworkin, P.J. St. Louis: Mosby Year Book. Inc.

3. Motor Speech Disorders: Substrates, Differential diagnosis and Management. (1995).

Duffy, J. R. St. Louis: Mosby.
4. Pre feeding skills. Morris. S. and Klein. M. U.K.: Winslow

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

B 3.4 REHABILITATIVE AUDIOLOGY

(100+50 marks) **(Total = 75 hrs)**

Objectives:
After studying this paper at the end of the year, the student should be able to understand the following –
· speech reading
· auditory learning
· management of individuals with additional problems
· assistive listening devices
· implantable devices

Unit 1 **(15 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 **(25 hrs)**

Auditory training
(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 **(15 hrs)**

1. Speech Characteristics of persons with hearing impairment.
2. Management of hearing impaired individuals with special needs
(a) Management of multi handicapped hearing impaired children (MHHI)
(b) Management of children with central auditory processing problems
(c) Rehabilitation of hearing impaired – elderly population

Unit 4 **(05 hrs)**

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

Unit 5 **(15 hrs)**

1. Implantable Devices
-Middle Ear Implants and BAHA (Bone Anchored Hearing Aid)
-Cochlear Implants
-Brainstem Implants
Components, Candidacy, Advantages and Complications for the same.
2. Utility of technology/devices in the management of tinnitus, hypercusis.

LIST OF BOOKS

Compulsory Reading:

1. Clark, G.M., Cowan, R.S.C. & Dowell, R.C. (1997). Cochlear Implantation for Infants & Children: Advances. Singular Publishing Group Inc.
2. Davis J.M. & Hardick E.J. (1981). Rehabilitative Audiology for Children and Adults. NewYork: John Wiley & Sons
3. Erber N.P. (1982) Auditory Training. Washington DC: AG Bell Association for the Deaf
4. Schow; R.L.; & Nerbonne. M.A.(Eds) (1996). Introduction to Audiologic Rehabilitation (3rd edition). Bsoton: Allyn & Bacon
5. Maxon, A.B. & Brackett D. (1992). The Hearing Impaired Child: Infancy through high School years
6. Alpiner & Mc. Carthy
7. Aural Rehabilitation (2nd ed.) Raymond Hill (1982).
8. Visual communication for the HOH. History, Research, methods Oneill & Oyer (981). 9. Speech reading (lipreading) Jeffers & Barley (1971)
10. Speech reading – a way to improve understanding (2nd ed) Kaplan, Bally & Garretson (1985).
11. Deafness and communication – Sims, Walter, Whitehead.
12. Thirumalai and Gayathri. Speech of the Hearing Impaired.
13. Bench.

B 3.5 NOISE MEASUREMENT AND HEARING CONSERVATION

(100+50 marks) **(Total = 75 hrs)**

Objectives:

After studying this paper at the end of the year, the student should be able to understand the following –

· effects of noise
· measurement of noise and vibration
· audiological findings in noise induced hearing loss
· legislations related to noise

Unit 1 **(15 hrs)**

a) Noise in the environment and effects of noise:

· Definition of noise
· Sources – community, industrial, music, traffic and others
· Types – steady & non-steady, Impulsive/Impact, intermittent

b) Auditory effects of noise exposure

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

c) Non-auditory effects of noise exposure

· Physiological/Somatic & psychological responses, stress and health, sleep, audioanalgesia effects on CNS and other senses
· Effects of noise on work efficiency and performance

Unit 2 **(15 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:
· Other audiological evaluations:
· Impedance audiometry
· ERA
· OAE
· Tests for susceptibility

Unit 3 **(15 hrs)**

Noise & vibration measurement

· Instrumentation and procedure for indoor and outdoor measurement of ambient noise, traffic noise, aircraft noise, community noise and industrial noise.
· Calibration: Biological and instrumental for AC & BC transducers.

Unit 4 **(15 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 **(15 hrs)**

Legislations related to noise:

· Damage Risk Criteria (DRC) – definition, historical aspects, use of TTS and PTS, information in establishing DRC, - Committee on Hearing Bioacoustics & Biomechanics (CHABA), Air Force Regulation (AFR 160-3), American Academy of Ophthalmology & Otolaryngology (AAOO), ASA-Z 24.5, Damage risk contours, Walsh – Healey Act, Occupational Safety & Health Act (OSHA), Environmental Protection Agency (EPA), Indian noise standards. Correction for aging in NIHL.

· 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

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

B 3.6 Community Oriented Professional Practices in Speech Language Pathology and Audiology

(100+50 marks) **(Total = 75 hrs)**

Objectives:
After studying this paper at the end of the year, the student should be able to understand the following –
· Epidemiology of speech, language and hearing disorders
· Service delivery and CBR issues
· Legislative support for rehabilitation
· Documentation and ethical issues

Unit 1 **(15 hrs)**
· Epidemiology of speech, language and hearing disorders
· Environmental, Social, Economic implications and preventive education
· Levels of prevention: Primary, Secondary, Tertiary
· Survey, prevalence, Incidence and its implication in planning
· Health promotion, specific protection, early diagnosis and treatment of a high risk infant, Disability limitation, Educational and Vocational rehabilitation

Unit 2 **(15 hrs)**
· Approaches to service delivery: Institution based, Camp based, Community based
· and Role of NGOs
· Review of services in India
· Integration of Disabled into the community and ICF 2001

Unit 3 **(15 hrs)**
· Duties and responsibilities of SLP in various settings
· Professional ethics for SLPs, Code of Ethics, Right to Education Act, Industrial
· Employment Act
· Interacting with allied professional and community health workers

Unit 4 **(15 hrs)**
· 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.
· Strategies for awareness, public education and information (Camps, Print and audiovisual media, Surveys. Radio broadcasts, street plays).
· Empowering parents, persons with disabilities and the community; Skill transfer to DHLS, parents; grass-root level workers, teachers and health workers

Unit 5 **(15 hrs)**

· Legislative support for rehabilitation- Rehabilitation Council of India Act (1992), Persons With Disability Act (1995), National Trust Act for the Welfare of Autism, CP, MR and Multiple Disabilities (1999), Environmental Act, Consumer Protection Act, Right To Information Act, UNCRPD Act.

· The professional as a witness; documentation; handling legal issues

LIST OF BOOKS

Compulsory Reading:

1. Baquer, A. & Sharma, A. (1997). Disability: Challenges Vs Responses. CAN publications.
2. Kundu, C.L., Status of Disability in India, (2000 & 2003) Ed. Kundu, C.L., RCI
3. Narsimhan, M.C. & Mukherjee, A.K. (1986). Disability a Continued Challenge: Delhi willey eastern.
4. WHO (2001). International classification of Functioning, Disability and Health. Geneva: WHO
5. Professional Issues in Speech-Language Pathology and Audiology - A Text book. (1994). Lubinski R. and Frattali C. California: Singular Publishing Group

Additional/Optional Reading:

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

B 3.7 CLINICAL PRACTICUM IN SPEECH LANGUAGE PATHOLOGY (50+50 marks)

1. Understand aspects of informal and formal assessment for
i) Fluency disorders
ii) Neurogenic language disorders
iii) Motor speech disorders
2. Identify the Differential Diagnostic categories of these disorders
3. Familiarization on the use of various tests and materials available for assessment
i) Western Aphasia Battery
ii) Illinois Test of Psycholinguistic abilities
iii) Boston Diagnostic Aphasia Examination
iv) Revised Token Test
v) Right Hemisphere Language Battery
vi) Apraxia Battery for Adults
vii) Frenchay Dysarthria Assessment
viii) Stuttering Severity Instrument
ix) Stuttering Prediction Instrument
x) Indian tests and material available
4. Carry out assessment on atleast 1 case each from the above mentioned disorders with an assessment report and appropriate referral letters .
5. Carry out therapeutic plan on a client with the above mentioned disorders and submit a report of the same.

6.
· Conduct a fluency analysis in 4 normal samples (2 child sample and 2 adult sample) for the percentage of total disfluency and the individual disfluency on a conversation, narration and a reading task
· Measurement of rate of speech (words per minute, syllables per second) in normals
· Familiarization to different intonation, stress and rhythm patterns in speech samples (of different languages)
· IPA transcription of dysfluent speech; calculating the severity using any of the formal tests
· Comparing suprasegmental aspects of fluent and dysfluent speech samples
· Comparing normal non-fluency speech sample and child stuttering sample along with SSI scores
7. Counselling parameters for the following groups of disorders:
· Neurogenic language disorder (adult/geriatric; type)
· Motor speech disorder (based on age and site of lesion)
· Fluency disorders (age, motivation)
· Being cognizant about the legislative support available and direct the same to the parents/caretakers
9. Preparing public education pamphlets, hand-outs on different disabilities

B 3.8 CLINICAL PRACTIUM AUDILOGY

(50+50 marks)

Section A: Hearing Aid Trial Postings

1. Hearing aid trial: pre-selection of hearing aids, styles, EAC, other issues, inspection of ear moulds. Functional gain method (10 children & 10 adults). Concept of speech banana, aided audiogram.
2. Observing Real Ear Insertion Gain measurement (10 cases)
3. Pre-selection based on audiological evaluations (10 cases)
4. Hearing Aid trials:
· Functional gain, REIG, other methods with monoaural fitting, binaural fitting, Programmable hearing aid – Analog Digital
· 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), preparation of harness, cleaning of ear moulds. Binaural amplification and its uses.
6. Electro-acoustic evaluation of hearing aids (body level & ear level), with and without ear moulds. Equipment for analysis. Calibration of hearing aid analyzer.
7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.
8. Specification sheets – BIS, ANSI, IEC with respect to hearing aids.
9. Administration of Self (Help) assessment scales.
10. Fitting of hearing aids for sloping hearing loss.

Section B: Noise & Rehabilitative Technology

1. Compile information on cochlear implants regarding candidacy, cost, places where it is done and rehabilitation of cases.
2. Calibration of pure tone audiometry (AC, BC, Speech)
3. Noise measurement and attenuation measurement of ear protection devices.
4. 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, Eustachia Tube function, SPAR Compiling reports for the above.

Section C: 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 reg. candidacy, cost, places where it is done and rehabilitation of cases, in Indian contexts.
Section D: Diagnostic Audiology
Holistic Diagnostic Interpretation and And Report writing for Adult and Paediatric Test battery.

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