REGULATIONS AND CURRICULUM GOVERNING

BACHELOR IN AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY

(B. ASLP) PROGRAM

(2025-26)

Name of the Constituent Unit/Centre: Yenepoya Medical College



Deralakatte, Mangalore, Karnataka.

NOTIFICATION FROM THE UNIVERSITY

YENEPOYA
(DEEMED TO BE UNIVERSITY)

YENEPOYA (DEEMED TO BE UNIVERSITY)

OFFICE OF THE REGISTRAR

No.: 63-ACM/03/2025
Date: 16.06.2025

NOTIFICATION

Sub: Revised curriculum of Bachelor of Audiology and Speech Language Pathology - reg.:-

Ref: 1. Resolution of the Academic Council at its 63rd meeting held on 13.05.2025 vide agenda-03.
2. Resolution of the Executive Council at its 8th meeting held on 10.06.2025 vide agenda - 3

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Pursuant to the resolutions cited in the above references, Yenepoya (Deemed to be University) hereby notifies the revised curriculum of Bachelor of Audiology and Speech Language Pathology as per the RCI guidelines from the academic year 2025-2026.

REGISTRAR
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To:

PA to Vice Chancellor
Dean of Academics, Yenepoya (Deemed to be University)
Controller of Examinations
Dean, Faculty of Medicine
Head, Department of Audiology and Speech Language Pathology
File Copy

Vision

To provide access to quality higher education, ensuring equity, to create inspiring leaders of tomorrow who can take this country to the forefront of the developed nation.

Mission

- To achieve academic excellence and global competencies among students.
- To create an environment for the generation of new knowledge through meaningful research, adopting the latest methods of pedagogy and incorporating modern principles of academics integrated with high esthetical standards.
- To extend the knowledge acquired and new knowledge generated for the development of the community.
- To educate the public and create awareness on issues related to communication disorders.
- To undertake advocacy initiatives on behalf of and for persons with speech, language, lectures, tutorials, work, fieldwork, and hearing disorders.
- To promote interdisciplinary approaches in identifying and providing appropriate interventions to the clinical population.

PROGRAM OUTCOMES

BACHELOR IN AUDIOLOGY AND SPEECH LANGUAGE PAHOLOGY

Sl No:	Program Outcome	Description	Knowledge. Skills. Attitude
1.	PO1	Function as audiologists and speech-language pathologists in different work settings	K, S, A
2.	PO2	Understand concepts in speech, language, communication, hearing and disability	K

3.	PO3	Screen, evaluate, diagnose and assess the severity of different disorders related to speech, language, swallowing and hearing, manage speech, language, swallowing and hearing disorders of communication and their family members, and rehabilitate persons with speech, language, swallowing and hearing disorders	K, S, A
4.	PO4	Prevent speech, language, swallowing and hearing disorders, liaise with professionals in allied fields, and other stakeholders implement public awareness and education programs	K, S, A
5.	PO5	Undertake advocacy measures on behalf of and for persons with speech, language, and hearing disorders	S, A
6.	PO6	Counsel and guide persons with disorders of hearing and balance, as well as their family members, and also persons with disorders of speech, language and swallowing and their family members	K, S, A
7.	PO7	Implement rehabilitation programs for persons with hearing and balance disorders, to function as the disability certificate authority in the field, liaise with professionals in allied fields and other stakeholders and speech, language and swallowing disorders	K, S, A
8.	PO8	Advise government and other institutions on legal and policy issues related to persons with hearing and balance disorders, and speech, language, and swallowing disorders	

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COURSE OUTCOMES

BACHELORS IN AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

Sl No:	Name of the Course	Course Outcome Code	Description
B 1.1 M	Introduction to Speech-language Pathology	CO1	Basic concepts in speech, language and communication
B 1.2 M	Introduction to Audiology	CO1	Basic concepts of hearing sensitivity and acoustics
B 1.3 M	Anatomy and Physiology of Speech & Swallowing	CO1	Anatomy of the speech mechanism
		CO2	Functioning of the speech and swallowing mechanism
B 1.4 M	Anatomy and Physiology of Hearing	CO1	Anatomy of the auditory system
		CO2	Physiology of the hearing mechanism
B 2.1 M	Child Language Disorders	CO1	Explain the process of acquisition of language and the factors that influence its development in children
		CO2	Identify and assess language delay and deviance in children
		CO3	Select appropriate strategies for intervention
		CO4	Counsel and guide parents/caregivers of children with language disorders.

B 2.2 M	Diagnostic Audiology-Basic	CO1	Choose an individualised test battery for assessing cochlear pathology, retro cochlear pathology, functional hearing loss, CAPD, vestibular dysfunctions, tinnitus and hyperacusis
		CO2	Independently run the tests and interpret the results to identify the above conditions, and also use the information for differential diagnosis
		CO3	Make adjustments in the test parameters to improve the sensitivity and specificity of tests.
		CO4	Make an appropriate diagnosis based on the test results and suggest referrals
B 2.3 MC	Linguistics and Phonetics	CO1	Different branches and aspects of linguistics
		CO2	Characteristics and functions of language
		CO3	Different branches of phonetics, applied linguistics, phonology, morphology, syntax, semantics, pragmatics
		CO4	Acquisition of language and factors affecting it
		CO5	bi/multilingualism and related issues

B 2.4 MC	Otolaryngology	CO1	Causes, signs, symptoms, pathophysiology and management of diseases of the external, middle and inner ear leading to hearing loss
		CO2	Causes, signs, symptoms, pathophysiology and management of diseases of the laryngeal and articulatory systems
B 2.5 MO	Clinical Counselling	CO1	Understand the fundamentals, types and skills of clinical counselling
		CO2	Explore Theoretical Foundations of Counselling
		CO3	Examine the Ethical and Practical Issues in Counselling & Contextualise Counselling within the Indian Framework
B 3.1 M	Voice Disorders and Laryngectomy	CO1	Describe characteristics of normal voice and identify voice disorders
		CO2	Explain the aetiology related to voice problems and its pathophysiology
		CO3	Assess voice disorders
		CO4	Provide counselling and therapy to individuals with voice disorders
B 3.2 M	Amplification Devices	CO1	Assess the candidacy for hearing aids and counsel accordingly
		CO2	Evaluate the listening needs, select and program the appropriate hearing aid independently

		CO3	Independently assess the benefit from the hearing aid using subjective and objective methods
		CO4	Make all types of ear moulds & counsel the parents/caregivers at all stages
		CO5	Make an appropriate selection of assistive listening devices and advise the clients
B 3.3 MC	Electronics and Acoustics	CO1	Concept and types of power supply for biomedical instruments
		CO2	Basic aspects of digital signal processing & functioning of computers and computing systems
		CO3	Theoretical basis of acoustics required for audiologists
B 3.4 MC	Psychology for Speech and Hearing	CO1	Scope of clinical psychology and its significance for speech and hearing
		CO2	Concept of normality, abnormality and classification of abnormal behaviour
		CO3	Cognitive, motor, emotional and social development theories of learning and therapy techniques based on learning principles, neuropsychological assessment and rehabilitation
		CO4	Application of neuropsychology in the field of speech and hearing

		CO5	Basics of counselling
B 3.5 MO	Genetics	CO1	To know the basic principles of genetics, including the concepts of inheritance, genes, alleles, chromosomes, and DNA and Mendelian inheritance patterns (including dominant and recessive traits, as well as the exceptions to Mendel's laws)
		CO2	Comprehended the various mutagens and types of gene and chromosome mutations and The principles of genetic counselling in managing genetic disorders
		CO3	An understanding of the classification and diagnosis of genetic defects causing hearing impairment and speech-language disorders
B 4.1 M	Structural Anomalies and Speech Sound Disorders	CO1	Understand the characteristics of disorders with structural anomalies, including speech
		CO2	Evaluate and diagnose the speech characteristics seen in these disorders
		CO3	Learn about the techniques for the management of speech disorders in these conditions

B 4.2 M	Diagnostic Audiology – Advanced	CO1	Justify the need for using the different physiological tests in the audiological assessment
		CO2	Independently run the tests and interpret the results to detect the middle ear, cochlear and retro cochlear pathologies and also differentially diagnose
		CO3	Design tailor-made test protocols in immittance, AEPs and OAEs as per the clinical need
		CO4	Make an appropriate diagnosis based on the test results and suggest referrals.
B 4.3 MC	Neurology	CO1	Basic concepts, anatomy and physiology of the nervous system related to speech and hearing
		CO2	Neurosensory and neuromotor controls in speech, language and hearing mechanisms
		CO3	Cerebral plasticity and dominance and its relevance for speech, language and hearing disorders
		CO4	Various neural diseases, lesions, nutritional and metabolic conditions affecting speech, language and hearing

		CO5	Basic principles and assessment and management procedures used in speech, language and hearing disorders associated with neurological conditions
B 4.4 MC	Research Methods & Statistics	CO1	Basic concept of research in the field of audiology and speech-language pathology
		CO2	Design and execution of research
		CO3	Ethical guidelines for conducting research
B 4.5MO	Basics of Sign Language	CO1	Understand Sign Language as a Complete Language and discuss the two manual options with reference to Indian special schools
		CO2	Describe manual options in the light of issues like language, culture and identity and issues like literacy, training with reference to manual options
		CO3	Describe the finger spelling and basic vocabulary of Indian sign language and explain the phonology, morpho-syntax of Indian sign language
B 5.1 M	Fluency & its Disorders	CO1	Understand the characteristics of fluency and its disorders
		CO2	Evaluate and diagnose fluency disorders

		CO3	Learn about the techniques for the management of fluency disorders
B 5.2 M	Motor Speech Disorders-Children	CO1	Understand the characteristics of acquired motor speech disorders in adults
		CO2	Evaluate and diagnose speech characteristics in acquired motor speech disorders
		CO3	Learn about the techniques for the management of speech and related errors in acquired motor speech disorders
B 5.3 M	Paediatric Audiology	CO1	Describe auditory development
		CO2	List etiologies and relate them to different types of auditory disorders that may arise
		CO3	Explain different hearing screening/identification procedures and their application
		CO4	Elaborate on different aspects of paediatric behavioral and physiological / electrophysiological evaluation
B 5.4 M	Aural Rehabilitation	CO1	Describe the different communication options available for young children with hearing impairment

		CO2	Explain the impact of hearing impairment on auditory development, spoken language communication and quality of life
		CO3	Describe factors that affect acoustic accessibility and strategies to manage them at home, classroom and work environments
		CO4	Identify components of aural rehabilitation program for adults and administer different tools for assessment of hearing handicap, attitudes and beliefs that can impact aural rehabilitation
		CO5	Design activities for auditory training at different levels for children and adults
B 5.5 MO	Community Based Rehabilitation and Disability Certification		
B 6.1 M	Adult Language Disorders	CO1	Understand the characteristics of language disorders in adults
		CO2	Evaluate and diagnose speech characteristics in adults with language disorders
		CO3	Learn about the techniques for the management of speech and related errors in language disorders seen in adults

B 6.2 M	Motor Speech Disorders – Adults	CO1	Understand the characteristics of acquired motor speech disorders in adults
		CO2	Evaluate and diagnose speech characteristics in acquired motor speech disorders
		CO3	Learn about the techniques for the management of speech and related errors in acquired motor speech disorders
B 6.3 M	Implantable Devices	CO1	Assess candidacy for bone anchored hearing devices, middle ear implants, cochlear implants, and ABI
		CO2	Select the appropriate device depending on the audiological and non-audiological findings
		CO3	Handle post-implantation audiological management
		CO4	Assess the benefit derived from implantation
		CO5	Counsel the parents/care givers during different stages of implantation
B 6.4 M	Audiology in Practice	CO1	List and describe the highlights & welfare measures of legislations relating to hearing impairment and other disabilities

		CO2	Incorporate ethical practices in professional service delivery and describe different strategies to create awareness of hearing impairment and programs to address them
		CO3	Explain the different clinical practice settings in audiology with reference to their requirement, protocols and role and responsibility of audiologist
		CO4	Describe methods to measure the impact of noise on humans and strategies to address excessive noise exposure in industries and the community.
		CO5	Describe terminology, technology and methods used in tele practice, and their application in audiological service delivery

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PREAMBLE

The Bachelor of Audiology and Speech-Language Pathology (B. ASLP) program at the Department of Audiology & Speech-Language Pathology, Yenepoya Medical College Hospital, Yenepoya Deemed to be University, Mangalore, is designed to provide a comprehensive understanding of speech, language, and hearing sciences. This program integrates theoretical knowledge and practical skills, preparing students to become competent Audiologists and Speech-Language Pathologists capable of addressing the diverse communication needs of individuals across the lifespan.

The curriculum adheres to the norms and guidelines set by the Rehabilitation Council of India (RCI) and University Grants Commission (UGC) and aligns with the New Education Policy (NEP) 2020. It aims to foster interdisciplinary learning, encourage early exposure to clinical practice, and promote research-based education to meet global standards in the field.

The present revision has also considered and included aspects of the National Credit Framework, 2023, of UGC. The prospective students must log in 162 credits, spread over major, minor, and clinical subjects, for a bachelor's degree.

REGULATIONS FOR B. ASLP PROGRAM

1.0 SHORT TITLE AND COMMENCEMENT

These regulations shall be called "The regulations governing the 4-year Bachelor in Audiology and Speech-Language Pathology" at Yenepoya (Deemed to be University). These regulations shall come into force from the academic year 2025 - 2026.

2.0 NOMENCLATURE

The nomenclature of the program shall be “Bachelor in Audiology and Speech-Language Pathology.” B. ASLP is the short form.

3.0 OBJECTIVES OF THE BASLP PROGRAM

The objectives of the BASLP program are to equip the students with knowledge and skills to

- Function as audiologists and speech-language pathologists in different work settings,
- Understand concepts pertaining to speech, language, communication, hearing and disability.
- Screen, evaluate, diagnose, and assess the severity of different disorders related to speech, language, swallowing, and hearing.
- Manage speech, language, swallowing and hearing disorders in persons across life span,
- Counsel persons with communication disorder and their family members,
- Rehabilitate persons with speech, language, swallowing and hearing disorders.
- Promote early identification and prevention of speech, language, swallowing, and hearing disorders.
- Liaise with professionals in allied fields and other stakeholders.
- Implement public awareness and education program, and
- To undertake advocacy initiatives on behalf of and for persons with speech, language, lectures, tutorials, work, fieldwork, and hearing disorders.

4.0 DURATION OF THE PROGRAM

4.1 The program shall be of 4 academic years (eight semesters) including 1 year of internship

4.2 The program shall be completed within seven years from the date of admission.

4.3 An academic year consists of two semesters, and each semester shall extend over a minimum period of eighteen weeks.

4.4 There shall be an examination at the end of each semester.

4.5 The odd semesters 1, 3, 5, and 7 shall be from July to December, while the even semesters 2, 4, 6, and 8 shall be from January to June of the year. Time structure of the program shall be as follows:

Category	Details
Semester Duration	
Months	6 per semester
Weeks	26 per semester
Examinations and Study Holidays	8 weeks
Study Duration	**18 weeks**
Days per Week	6 days (Total: 90 days)
Hours per Day	7 hours (Total: 630 hours)
Internship	
Duration	120 days
Total Hours	840 hours

4.5) Semesters 7 and 8 together constitute the internship year during which the students may be posted in any speech and hearing or related institution including the parent institution.

5.0 DEFINITION OF KEY WORDS

5.1 Academic year: Two consecutive (one odd + one even) semesters shall constitute one academic year.

5.2 Course: Every course offered will have three components associated with the teaching-learning process of the course, namely:

a) Lecture-L

b) Tutorial- T

c) Practicum(Clinical)P

were,

L stands for Lecture session.

T stands for Tutorial session consisting of the participatory discussion / self-study/deskwork/brief seminar presentations by students and such other novel methods that make a student absorb and assimilate more effectively the contents delivered in the Lecture classes.

P stands for Practicum(Clinical) which would involve hands-on experience involving persons with communication disorders in clinical and other setups such as hospitals/clinics/outreach centers.

A course shall have either or all the above components. A credit means the unit by which the course work is measured. The total credit earned by a student at the end of the semester upon successfully completing the course are L+T+P. The credit pattern of the course is indicated as L: T:P.

5.3 Choice-Based Credit System (CBCS): The CBCS provides choice for students to select from the prescribed courses (elective or soft skill courses).

5.4 Credit Point: It is the product of grade point and number of credits for a course.

5.5 Credit: A unit by which the course work is measured.

5.6 Cumulative Grade Point Average (CGPA): It is a measure of cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

5.7 Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

5.8 Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters O, A++, A+, A, B+, B, F and Ab.

5.9 Program: Any educational program that leads to award of a degree

5.10Semester Grade Point Average (SGPA): It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

5.11 Types of courses (papers): Different courses of study are labelled and defined as follows:

1. **M:** Major courses are to be compulsorily completed by a student as a core requirement to complete the program.

2. **MC:** Minor Compulsory courses are required courses that support the discipline of study and help nurture student proficiency and skill in related areas.

3. **MO:** Minor Optional courses are generally from a related discipline/ subject and are included to provide exposure beyond the core discipline/subject.

4. **GE**: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure beyond discipline/subject is called a Generic Elective.

6.0 MEDIUM OF INSTRUCTION

Medium of instruction is English, and examinations shall be in English.

7.0 ELIGIBILITY FOR ADMISSION

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

7.2 The applicants/candidates should have studied any two or more subjects in the science stream in the qualifying examination

7.3 The candidate should clear the online entrance examination (Y-entrance) as per Yenepoya (Deemed to be University) norms/ as specified by the council time to time through amendments.

7.4 The eligibility of persons with disability shall be assessed by a committee consisting of an expert in speech-language pathology, audiology, clinical psychology, paediatrics, and otolaryngology, among others. In general, admission of students under "Disability Category" for the BASLP program shall be governed by the same guidelines (No. U. 14021-8-2023-UGMEB/Dated 12th June 2023) issued by the National Medical Commission for admission of students under "Disability Category" to the MBBS program.

7.5 Foreign applicants shall obtain an equivalency certificate from the Association of Indian Universities.

8.0 ATTENDANCE

8.1 Each course/subject shall be taken as a unit for calculating attendance.

8.2 Attendance shall not be less than 80% in theory and 90% in Clinical / Practical's in each semester. Students not meeting the attendance requirements shall not be allowed to take examination in the paper with shortage of attendance and will be marked 'failed.' Such students can take the exam in that paper in the next odd or even semester.

8.3 The students will be given opportunity for the remedial classes as per the University norms.

9.0 EXAMINATION

9.1 A student must earn all 162 credits for successful completion of the B. ASLP program. Students shall obtain these 162 credits as follows:

Major (M)	Speech-language Pathology	Theory	32 credits
Major (M)	Audiology	Theory	32 credits
Major (M)	Speech-language Pathology	Clinicals	33credits*
Major (M)	Audiology	Clinicals	33 credits*
Minor Compulsory (MC)	Related Areas		22 credits
Minor Compulsory (MC)	RCI		4 Credits
Minor Optional (MO)	Related Areas		4 Credits
UGC Mandatory courses			2 credits
Total			162 Credits
*Including the 20 credits earned during internship			

9.2 The pattern of the question paper is shown in Appendix 1

10.0 PAPERS AND EXAMINATION PATTERN

10.1 The examination pattern and papers shall be as shown in the table below:

No.	Title of the paper	Practical	IA	Exam	Total	Credit
B 1.1 M	Introduction to Speech-Language Pathology	–	25	50	75	3
B 1.2 M	Introduction to Audiology	–	25	50	75	3
B 1.3 MC	Anatomy and Physiology of Speech & Swallowing	–	25	50	75	2
B 1.4 MC	Anatomy and Physiology of Hearing	–	25	50	75	2
B 1.5 M	Practicals Speech-language Pathology	–	–	50	50	1
B 1.6 M	Practicals Audiology	–	–	50	50	1
B 1.7 GE	COI		10	40	50	1
B 1.8 GE	EVS		10	40	50	1
		-	100	380	500	14
B 2.1 M	Child Language Disorders	25	25	50	100	4
B 2.2 M	Diagnostic Audiology-Basic	25	25	50	100	4
B 2.3 MC	Linguistics and Phonetics	–	25	50	75	3
B 2.4 MC	Otolaryngology	–	25	50	75	3
B 2.5 MO	Counselling and guidance/CBR	–	10	40	50	1
B 2.6 M	Clinicals in Speech Language Pathology	–	25	50	75	1
B 2.7 M	Clinicals in Audiology	–	25	50	75	1
		50	160	340	550	17
B 3.1 M	Voice Disorders and Laryngectomy	25	25	50	100	4
B 3.2 M	Amplification Devices	25	25	50	100	4
B 3.3 MC	Electronics and Acoustics		25	50	75	3

B 3.4 MC	Psychology for Speech and Hearing		25	50	75	3
B 3.5 MO	Developmental Paediatrics/Dysphagia	–	10	40	50	1
B 3.6 M	Clinicals in Speech-language Pathology	–	25	50	75	3
B 3.7 M	Clinicals in Audiology	–	25	50	75	3
		50	160	340	550	21
B 4.1 M	Structural Anomalies and Speech Sound Disorders	25	25	50	100	4
B 4.2 M	Diagnostic Audiology—Advanced	25	25	50	100	4
B 4.3 MC	Neurology	–	25	50	75	3
B 4.4 MC	Research Methods & Statistics	–	25	50	75	3
B 4.5 MO	Genetics/Vestibular Disorders	–	10	40	50	1
B 4.6 M	Clinicals in Speech-language Pathology	25	25	50	100	3
B 4.7 M	Clinicals in Audiology	25	25	50	100	3
		100	160	340	550	21
B 5.1 M	Fluency and its Disorders	25	25	50	100	4
B 5.2 M	Motor Speech Disorders-Children	25	25	50	100	4
B 5.3 M	Paediatric Audiology	25	25	50	100	4
B 5.4 M	Implantable Devices	25	25	50	100	4
B 5.5 MO	Telerehabilitation and Disability Certification	–	10	40	50	1
B 5.6 M	Clinicals in Speech-Language Pathology	–	25	50	75	3
B 5.7 M	Clinicals in Audiology	–	25	50	75	3
		100	160	340	600	23

B 6.1 M	Adult Language Disorders	25	25	50	100	4
B 6.2 M	Motor Speech Disorders – Adults	25	25	50	100	4
B 6.3 M	Aural Habilitation	25	25	50	100	4
B 6.4 M	Audiology in Practice	25	25	50	100	4
B 6.5 MC	RCI Course	–	25	75	100	4
B 6.6 M	Clinicals in Speech-language Pathology	25	25	50	100	3
B 6.7 M	Clinicals in Audiology	25	25	50	100	3
		150	175	375	700	26
B 7.1 M	Clinicals in Speech-language Pathology	–	–	100	100	20
B 7.2 M	Clinicals in Audiology	–	–	100	100	20
				200	200	40

10.2 Course content shall be as in Appendix 2

10.2 There shall be a theory examination and clinical at the end of each semester (semester 2 to 6). There shall be one clinical examination at the end of the internship. This shall be as per the calendar notified by the University.

10.3 There shall be two internal assessments, IA 1 and IA 2. Each internal assessment shall be divided into one written test, and one assignment which will constitute to 50% of marks. The remaining 50% of IA marks shall be awarded based on continuous assessment by the faculty teaching the given subject.

10.4 The practical examinations, will be based on clinical viva-voce. Practical exams at the

end of 1st semester shall be conducted by two internal examiners nominated by the head of the department or institution. Record of practicals maintained by the students shall also be evaluated by the examiners. In the II, III, IV, V, VI and VIII **Semesters**, viva-voce will be conducted by **one internal faculty and one external faculty** to examine the **students'** clinical skills. B7.1 and B7.2 shall be at the end of internship (8th semester).

10. 5. All clinical examinations shall be with clinical population and with audio / video records of clinical samples. The examiners shall also evaluate records of clinical and practical work of the students.

10.6 Examinations for all Minor Optional (B 2.5, B 3.5, B 4.5, and B 5.5, as well as Minor Compulsory B 6.5) shall be conducted by the department, but the marks awarded shall be entered in the university marks card.

11.0 CRITERIA FOR A PASSING

11.1 The student is required to obtain a minimum of 50% in each of the theory papers, internal assessment, practical and clinical exams for a pass. Students will not be able to appear for university exams if they do not pass in their practical or internal assessment component, or clinical examination. This also includes the attendance criteria as mentioned in 8.2. A student is considered to have passed the course, only on securing a minimum of 50% in the University examination for a pass. In case a student secures less than 50% in the final theory exam or absents himself, then he/she is deemed to have failed in the paper/course. Such students can complete the course by reappearing only for the final component of the course

when University conducts the examination. The student carries the internal marks already awarded to him/her.

12.0 CARRY-OVER OF PAPERS

12.1 Carryover of papers shall be as per the University norms.

12.2 Students shall pass the clinical examination of the given semester to proceed to the next semester.

13.0 CLINICAL INTERNSHIP

13.1 All students shall complete a clinical internship of one academic year (10 months) after the 6th semester provided, they have passed in all the examinations.

13.2 The rules and regulations of clinical internship shall be as in Appendix 3.

14.0 COMPUTATIONS OF SGPA AND CGPA

14.1 The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses and the sum of the number of credits of all the courses undergone and earned by a student, that is,

$$SGPA\ (Si) = \sum(Ci \times Gi) / \sum Ci$$

where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course.

14.2 The CGPA is calculated taking into account all the courses undergone and successfully completed by a student in each of the 8 semesters, that is,

$$CGPA = \sum(Ci \times Si) / \sum Ci$$

where Si is the SGPA of the i^{th} semester and Ci is the total number of credits in that semester.

14.3 The SGPA and CGPA shall be rounded off to 2 decimal points.

15.0 LETTER GRADES, GRADE POINTS AND CLASS

15.1 The program shall follow absolute grading system in which marks obtained are converted to grades based on pre-determined class intervals. The program adopts the UGC recommended system of grades, grade points, letter grades etc. with some changes to reflect the requirement of the present program to keep minimum marks for a pass at 50%. The letter grades, grade points and the class shall be as shown in the table below

% of Marks	Grade Point	SGPA / CGPA	Letter Grade	Class
90+	10	9.00 to 10.00	O (Outstanding)	Distinction
80+	9	8.00 to < 9.00	A++ (Excellent)	Distinction
75+	8.5	7.50 to < 8.00	A+ (Very Good)	Distinction

70+	8	7.00 to < 7.5	A (Very Good)	First class
60+	7	6.00 to < 7.00	B+ (Good)	First class
50+	6	5.00 to < 6.00	B (Above Average)	Second Class
<50	0	<5.00	F (Fail)	Fail
	0		Ab (Absent)	Fail

15.2 A student has to obtain a grade point of 6 to pass the examination. Students getting SGPA of 7 and above shall be declared to have passed the examination in first class and those getting an SGPA of 8.5 and above shall be declared to have passed the examination in distinction provided they have passed all their examinations in the first attempt itself. Students getting grade point of <6 are deemed to have failed the examination and shall take the examination again when offered in the subsequent odd / even semester.

16.0 GRACE MARKS

Grace marks shall not be awarded for internal assessments or clinical examinations. Grace marks for the final theory examinations shall be as per the University policy.

17.0 AWARD OF DEGREE

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

18.0 MISCELLANEOUS

18.1 These revised regulations will apply to candidates admitted for the academic year 2025 - 26 and onwards for the Program mentioned in Regulation No.1.0 above.

18.2 Other regulations not specifically mentioned above shall be as per the Regulations of the Yenepoya (deemed to be University) as applicable from time to time.

18.3 The University shall award the degree to successful candidates only after completion of internship.

18.4 **Certification as a Registered Professional**: The successful students will be registered as an Audiologist and Speech-Language Pathologist in the Central Rehabilitation Register of the Rehabilitation Council of India. The training institution/organization should ensure that all passed out students are registered with the Council.

Note: Any other issue not envisaged above shall be resolved by the Vice Chancellor in consultation with the appropriate Bodies of the University, which shall be final and binding.

APPENDIX -I

Sample Question Paper for 50 marks

Course Title: …… Max. Marks: 50

Course Code …… Duration: 2 hrs

Question type	Questions	Marks
Long Essay (answer any one)	1. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	10
	2. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	10

Short Essay (answer any 6)	3. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	4. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	5. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	6. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	7. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	8. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	9. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	10. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
Short answer (answer any 5)	11. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	12. Xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	13. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	14. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	15. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	16. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	17. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2
	18. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	2

Sample Question Paper for 40 marks

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Course Title: …… Max. Marks: 40

Course Code …… Duration: 2 hrs

Question type	Questions	Marks
Long Essay	1. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	10
Short Essay	2. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	3. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
	4. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	5
Short answer	5. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3
	6. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3
	7. xxxxx 8. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3
	9. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3
	10. xxxxxx 11. 12. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	3

Course Content

4-year BASLP program

Rehabilitation Council of India

YENEPOYA
Deemed to be University

YENEPOYA
Medical College & Hospital

Department of Audiology & Speech Language Pathology

Yenepoya Medical College Hospital
Yenepoya Deemed to be University
Deralakatte,
Mangalore- 18
E-mail: aslp@yenepoya.edu.in

Semester 1

B1.1 M: Introduction to Speech-Language Pathology

Hours 45 **Marks 75: Credits 3**

Objectives: After completing this course, the student will

a. have the basic concepts of speech, language and communication, and the relationship between them
b. know the physical, biological, social, psychological and linguistic bases of speech
c. will be able to trace out the stages of normal development of speech and language,
d. will have the basic skills of assessment and evaluation of speech, language and swallowing disorders, and
e. know the nature and scope of the field of speech-language pathology.

Unit 1: Introduction to Speech-Language Pathology

a) History and development of speech-language pathology in Indian and Global context.
b) Definition and functions of speech, language, communication, and their components
c) Basic models of speech communication: Speech and hearing as a servo system, Shannon-Weaver model, Lasswell model, and Berlo model
d) Speech chain and Speech as an overlaid function
e) Bases of speech and language – anatomical, physiological, neurological, physical, aerodynamic, linguistic, psychological, socio-cultural and genetic
f) Introduction to Speech-Language Disorders
g) Incidence and prevalence of speech and language disorders
h) Definition and descriptions of delay, deviancy, and disorders; impairment, disability and handicap

Unit 2: Normal Development of Speech-language and Basics of Management

a) Development of speech-language
b) Pre-requisites and factors affecting speech-language development
c) Basic concepts and terminologies in speech therapeutics
d) General principles of speech and language therapy
e) Individual and group therapy
f) Approaches to speech-language therapy – formal, informal, and eclectic approaches
g) Planning for speech and language therapy – goals, steps, procedures, and activities
h) Importance of reinforcement principles and strategies in speech and language therapy, types and schedules of rewards and punishment

Unit 3: Assessment and Management of Speech and Swallowing Disorders

a) Causes of speech disorders
b) Overview of assessment procedures for voice disorders; articulation and phonological disorders; and fluency disorders
c) Overview of management procedures for voice disorders; articulation and phonological disorders; and fluency disorders
d) Basic concepts in assessment and management of swallowing disorders
e) Early identification and prevention of speech disorders

Unit 4: Assessment and Management of Language Disorders

a) Types, characteristics and classification of language disorders
b) Causes of language disorders
c) Overview of assessment procedures for child language disorders; adult language disorders; and neurogenic language disorders
d) Overview of management procedures for child language disorders; adult language disorders; and neurogenic language disorders
e) Issues related to bi/multilingualism
f) Early identification and prevention of language disorders

Unit 5: Speech-Language Pathology as a Profession

a) Professional code of conduct – social, cultural and other ethical issues
b) Interdisciplinary nature and scope of practice in speech-language pathology
c) Documentation of diagnostic, therapeutic and referral reports
d) Evaluation of therapy outcome and follow up
e) Evidence-based practice
f) Community-based rehabilitation

g) Role of itinerant speech therapist, Anganwadis, and resource teachers
h) Facilities and concessions available for speech and hearing disabled

Recommended Reading

1. Brookshire, R. H. (2003). Introduction to neurogenic communication disorders (6th ed.). St. Louis, Mo: Mosby.
2. Hegde, M. N., & Davis, D. (2005). Clinical methods and practicum in speech-language pathology (4th ed.). Australia; Clifton Park, NY: Thomson Delmar Learning.
3. Hulit, L.M., Marle. R., Kathleen, R. H., & Fowey (2010). Born to Talk. Pearson Communication Science and Disorders Series 5th Ed.
4. Owens. Jr, Kimberly, A. Metz, F.E. (2014). 5th Ed. Introduction to Communication Disorders: A life span based Perspective. Pearson Communication Science and Disorders Series.
5. Roth, F. P., & Worthington, C. K. (2005). Treatment resource manual for speech language pathology (3rd ed.). Australia; Clifton Park, NY: Thomson Delmar Learning.
6. S R Savithri, (2019) Introduction to Communication Sciences, Nova Science Publishers.
7. Shipley, K. G., & McAfee, J. G. (2004). Assessment in speech-language pathology: A resource manual (3rd ed.). Australia; Clifton Park, NY: Delmar Learning.
8. Shipley, K. G., & Roseberry-McKibbin, C. (2006). Interviewing and counselling in communicative disorders : Principles and procedures (3rd ed.). Austin, Tex: Pro-Ed.
9. Ysseldyke, J. E., &Algozzine, R. (2006). Teaching students with communication disorders : A practical guide for every teacher. Thousand Oaks, Calif.: Corwin Press.

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B1.2 M : Introduction to Audiology

Hours 45 **Marks 75 : Credits 3**

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

a. describe the basic concepts of hearing sensitivity and acoustics
b. describe the characteristics and causes for different types of hearing loss
c. take case history, administer and interpret tuning fork tests
d. carry out pure tone and speech audiometry on clinical population
e. carryout subjective calibration and daily listening checks of the audiometer, and
f. explain the theoretical basis of objective calibration of audiometers

Unit 1: Historical Aspects of Audiology and Scope of Audiology

a) History of Audiology, development of instrumentation in audiology
b) Development of the field of audiology: Indian and global context
c) Branches of audiology and scope of audiology
d) Multidisciplinary inputs to audiology

Unit 2: Normal Aspects of Hearing

a) Sound intensity and concept of decibel; Acoustic energy and power, absolute and relative units – importance of reference: Sound intensity and intensity levels – absolute and relative measurements: Bel – decibels and its application: relationship between intensity and pressure

b) Audibility and hearing: Hearing range – intensity and frequency: Minimum audible pressure and field: Estimation of minimum audible levels: Missing six dB: Reference equivalent threshold sound pressure levels and hearing levels: Sensation levels, threshold of pain, most comfortable levels
c) Differential sensitivity: Concept of just noticeable difference and its applications: Intensity, frequency and duration discrimination: Magnitude estimation and production: Loudness – equal loudness level contours and its application: Scales of pitch and loudness scales

Unit 3a: Hearing Loss

a) Hearing loss and related terminologies
b) Classification of hearing loss: conductive, sensori-neural, mixed and central
c) Characteristics of different types of hearing loss
d) Causes of different types of hearing loss: Adult and children: Congenital and acquired: Pre-natal, natal and post-natal causes: Genetic and environmental causes

Unit 3b: Case History and Tuning Fork Tests

a) Importance of case history taking in audiology practice
b) Essential factors to be included in case history for adults and children
c) Interpretation of case history information
d) Principles, procedure, interpretation, advantages and disadvantages of different tuning fork tests – Rinne, Schwabach, Weber and Bing tests
e) Audiometric version of Weber and Bing test

Unit 4: Pure Tone Audiometry

a) Classification of audiometers, Parts of an audiometer, characteristics and specifications of transducers used (earphones, bone vibrators, loud speakers)
b) Audiogram- concept and symbols used
c) Clinical method of threshold estimation
d) Factors affecting air conduction threshold
e) Bone conduction thresholds- measurements, factors effecting; SAL.
f) Permissible noise levels in the audiometric room

Unit 5: Speech Audiometry

a) Terminology, need for speech audiometry and types of stimuli used in speech audiometry, Test materials available in Indian languages
b) Speech reception thresholds – procedures and application
c) Word recognition scores –procedure and applications
d) Other measures of speech audiometry: Speech detection threshold, most comfortable level, uncomfortable level,
e) PIPB function – procedure and applications
f) Factors affecting speech audiometry, Bone conduction speech audiometry

Recommended reading

1. Speaks, C. E. (2017). Introduction to Sound: Acoustics for the Hearing and Speech Sciences (4th Edition). Plural Publishing Inc.
2. Martin, F. N., & Clark, J. G. (2018). Introduction to Audiology. 13th Edition. Boston: Pearson.
3. Gelfand, S. A. (2017). Hearing: An Introduction to Psychological and Physiological Acoustics (6th edition.). London: CRC Press.
4. Durrant, J. D., & Feth, L. L. (2012). Hearing Sciences: A Foundational Approach (1 Edition.). Boston: Pearson.

5. Katz, J. (2014). Handbook of Clinical Audiology (7th International edition.). Lippincott Williams and Wilkins.
6. Silman, S., & Silverman, C. A. (1997). Auditory Diagnosis: Principles and Applications (Reissue Edition.). San Diego: Singular Publishing Group
7. Stach, B. A. (2021). Clinical Audiology: An Introduction (3rd Edition). Plural Publishing Inc.
8. Gelfand, S. A. (2017). Essentials of Audiology (4th Edition). Thieme Publishers.

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B1.3 MC : Anatomy and Physiology of Speech & Swallowing

Hours 30 **Marks 75: Credits 2**

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

a. describe the embryonic development of structures subserving speech and swallowing
b. describe the anatomy of the structures involved in speech production
c. describe the process of speech production including voice, and the underlying mechanism including neural control,
d. explain the anatomy and physiology of swallowing mechanism

Unit 1: Introduction

a) Anatomical terms, positions, and planes of reference
b) Cells and tissues of the body
c) Basic terminology related to embryology
d) Development of larynx and respiratory structures
e) Development of structures in the oral cavity

Unit 2: Anatomy of Speech Production

a) Anatomy of respiratory structures including larynx
b) Structure of articulators in the oral cavity
c) Structures of the resonatory mechanism
d) Neural structures subserving speech production

Unit 3: Physiology of Speech Production

a) Breathing, speech-breathing, and posture
b) Role of larynx in voice-speech production
c) Mechanism of phonation
d) Mechanism of production of speech sounds
e) Resonatory mechanisms and their contribution to speech

Unit 4: Anatomy and Physiology of Swallowing

a) Structure of the oral cavity for swallowing
b) Anatomy of pharynx and esophagus
c) Stages and processes of swallowing

Unit 5: Disorders of Speech and Swallowing

a) Five examples of embryonic anomalies affecting speech and language
b) Speech disorders: fluency disorders, voice disorders, articulatory and resonatory disorders
c) Feeding and swallowing disorders

Recommended Reading

1. Bernard Rousseau., & Ryan C. Branski. (2018). Anatomy and Physiology of Speech and Hearing. Thieme Medical Publishers, Inc. New York.
2. Chaurasia, B.D (2022). Human Anatomy, vol 3. Head Neck and vol 4. Brain (9th Edition) CBS Publishers and Distributors, New Delhi. ISBN 81-239-1157-2.
3. Gelfand, S. A. (2017). Hearing: An Introduction to Psychological and Physiological Acoustics (6th edition.). London: CRC Press.

4. Hixon, T J., Weismer G & Hoit J D (2020). Pre-clinical speech science – Anatomy, Physiology, Acoustics and Perception (3rd edition). Plural Publishing
5. Hoit, J D., & Weismer G. (2017). Foundations of speech and hearing: anatomy and physiology. Plural Publishing, Inc,
6. Kelley, M., Wu, D., & Fay, R. R. (Eds.). (2010). Development of the Inner Ear. New York: Springer.
7. Seikel, J. A., King, D. W., & Drumright, D. G., & Hudock D. J. (2019). Anatomy & Physiology of Speech, Language, and Hearing (6th edition). Plural publishing, Inc. NY.
8. Zemlin, W. R. (2010). Speech and Hearing Science: Anatomy and Physiology: . International Edition (4 edition.). Boston: Pearson.

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B1.4 MC : Anatomy and Physiology of Hearing

Hours 30 **Marks 75: Credits 2**

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

a. understand the evolution and anatomy of the auditory system including neural supply
b. describe the anatomy and functioning of external ear
c. describe the anatomy and functioning of middle ear system
d. describe the anatomy and functioning of labyrinth
e. describe the functional anatomy of the central auditory pathway

Unit 1: Introduction to general anatomy and embryology

a) General anatomical terms
b) Development of external
c) Development of middle ear
d) Development of inner ear
e) Five examples of embryonic anomalies affecting auditory system

Unit 2: Anatomy and physiology of External ear

a) Anatomy of pinna and external auditory canal
b) Auditory and non-auditory functions of external ear including localization
c) Head shadow effect, inter-aural intensity and time differences
e) Brief anatomy of the temporal bone

Unit 3: Anatomy and physiology of middle ear

a) Anatomy of middle ear including tympanic membrane
b) Auditory and non-auditory functions of the middle ear
c) Middle ear transformer action
f) Anatomy and physiology of Eustachian tube

Unit 4: Anatomy and physiology of labyrinth

a) Anatomy of the bony and membranous labyrinth
b) Micro and macro anatomy of cochlea
c) Innervations and blood supply to cochlea
d) Physiology of cochlea
e) Electrical potentials of the cochlea
g) Hearing through bone conduction
h) Overview to physiology of balancing mechanisms

Unit 5: Auditory Nerve and Central auditory pathway

a) Anatomy and Physiology of the Auditory nerve
b) Functional anatomy of the central auditory pathway and its physiology

Recommended Reading

1. Seikel, J. A., King, D. W., & Drumright, D. G., & Hudock D. J. (2019). Anatomy & Physiology of Speech, Language, and Hearing (6th edition). Plural publishing, Inc. NY.
2. Zemlin, W. R. (2010). Speech and Hearing Science: Anatomy and Physiology:

3. International Edition (4 edition.). Boston: Pearson.
4. Gelfand, S. A. (2017). Hearing: An Introduction to Psychological and Physiological Acoustics (6th edition.). London: CRC Press.
5. Chaurasia, B.D (2022). Human Anatomy, vol 3. Head Neck and vol 4. Brain (9th Edition) CBS Publishers and Distributors, New Delhi. ISBN 81-239-1157-2.
6. Kelley, M., Wu, D., & Fay, R. R. (Eds.). (2010). Development of the Inner Ear. New York: Springer.
7. Hoit, J D., & Weismer G. (2017). Foundations of speech and hearing: anatomy and physiology. Plural publishing, Inc.
8. Bernard Rousseau., & Ryan C. Branski. (2018). Anatomy and Physiology of Speech and Hearing. Thieme Medical Publishers, Inc. New York.

B1.5 M : Practicals: Speech-Language Pathology

Hours 30 **Marks 50 : Credits 1**

The objectives of the course are to provide skills to

a. identify normal speech and language development
b. list various parameters of speech and language skills
c. gather case history, and conduct oral peripheral examination
d. differentiate normal versus disordered speech and language skills in children and adults
e. list strategies/tools for assessment and techniques for therapy to facilitate speech and language skills in children and adults

Perform

a) List the available clinical facilities and clinical activities of the department/institute.
b) List the sources of referral for speech and language disorders (to and from the department).
c) List various public education materials/ videos that are available in the department.
d) List various assessment materials available for the evaluation of speech-language disorders.
e) Prepare a chart and show the developmental stages of speech and language behaviour.
f) Compile the normative data available in Indian languages with reference to speech sound acquisition
g) Prepare a report on the available clinical facilities and clinical activities of your institute.

h) Use IPA to transcribe spoken language sample. Standard passage may be used. Identify the number of phonemes and syllables in a list of words/passage.
i) Record a speech sample and analyse the parameters (voice, articulation, fluency, stress, rhythm, resonance).
j) Record a neurotypical child's language sample and analyse various parameters of language.
k) Measure the following: Habitual frequency, Frequency range, Intensity, Intensity range, Phonation duration, Rate of speech, Alternate Motion Rates, Sequential Motion Rates, s/z ratio.
l) List the available test material in the clinic for assessing various parameters of speech and language. Familiarize with three commonly used language test materials at the institute – Ex: Assessment of Language Development, ComDEALL Developmental Checklist (CDDC), Language Assessment Tool (LAT). Administer on one typically developing child and one child with language disorder.
m) List and demonstrate components of case history for communication disorders.
n) Perform oral mechanism examination on two neurotypical children and adults.
o) Perceptual analysis of speech parameters in persons with communication disorders – fluency, articulation, voice (3 adults, 3 children).
p) Prepare the following reports for various speech and language disorders: diagnostic report, baseline report, lesson plan, progress report, and discharge report.
q) List the commonly used speech language stimulation techniques and perform a role play.
r) List reinforcement strategies. Prepare some reinforcers that can be used in diagnostics or therapy
s) Prepare a list of sources of referrals and a response letter to the referral source.
t) Prepare diagnostic & therapy kits and a checklist for parent counselling.
u) Observe the assessment and counselling of different speech and language disorders in children and adults.
v) Observe the speech and language therapy of different speech and language disorders in children and adults.

w) Observe the use of various software and instruments used for the assessment and management of speech and language disorders.

x) Document ICF classification of various speech-language disorders.

y) Document DSM V and ICD 11 classification of various speech-language disorders.

B1.6 M :Practicals: Audiology

Hours 30 **Marks 50 : Credits 1**

a) Daily listening check and trouble shoot of different clinical audiometers
b) Preparation of correction factor chart after biological calibration on individuals with normal hearing
c) Getting familiar with different clinical audiometers, parts of audiometers and their functions
d) Familiarization with different types of transducers – earphones/ear cushion combination, speakers, insert earphones, bone vibrators
e) Appropriate placement of various transducers on clients during Audiometry including masking
f) Get familiar with instructions for carrying out pure tone audiometry, Speech audiometry and masking in 5 different languages at least
g) Familiarization with different types of stimuli used in audiometry
h) Establishment of PT thresholds (AC & BC) using ascending, descending and modified Hughson Westlake procedures in 5 individuals with normal hearing
i) Estimation of bone conduction threshold with forehead and mastoid placements in 5 individuals with normal hearing
j) Familiarization with different symbols used on audiogram for unmasked and masked AC, BC, SRT, and SIS for different transducers for right and left ear.
k) Familiarization with materials used for speech audiometry in different Indian languages and English for adults and children
l) To observe the counselling before and after audiological testing
m) Establishing UCL, MCL, DR, SRT, SDT & SIS on 5 individuals with normal hearing
n) Administration of clinical masking on 5 individuals with normal hearing
o) Familiarization with different equipment used for objective calibration of audiometers
p) Observation of objective calibration procedure for audiometers as per standards
q) Administration of SAL and Rainville on 5 individuals with normal hearing

Semester 2

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B2.1 M: Child Language Disorders

Hours 75 (45 + 30) **Marks 100 : Credits 4 (3+1)**

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

a. explain the process of acquisition of language and factors that influence its development in children,
b. identify and assess language delay and deviance in children,
c. select appropriate strategies for intervention,
d. counsel and provide guidance to parents/caregivers of children with language disorders, and
e. initiate advocacy programs for children with language disorders

Unit 1 Bases of Language Acquisition and Development

a) Theories of language acquisition in children - biological maturation, cognitive theories, linguistic theories, information processing theories, behaviour theories, social interaction theories, pragmatic/ discourse theories
b) Development of components of language from birth to two years (pre-linguistic/presymbolic to symbolic) Development of components of language during preschool period Development of components of language during early school age and beyond
c) Language acquisition including bilinguals/ multilinguals - types (based on age, manner of acquisition, factors affecting language acquisition).
d) Factors affecting language development in children including environmental factors like language environment and effects of neglect and abuse, socioeconomic status and biological factors like twins and multiple pregnancies, genetic factors etc.

Unit 2: Language Disorders and their Characteristics

a) DSM 5 and ICD 10 classification of language disorders
b) Definition, General characteristics, language characteristics, causes and co morbidities in the following conditions:
    a. Hearing impairment
    b. Intellectual disability
    c. Syndromes associated with child language disorders - Down Syndrome, Fragile-X Syndrome, William's Syndrome, Klinefelter's Syndrome,
    d. Autism Spectrum Disorders,
    e. Specific language impairment/developmental language disorders, attention deficit hyperactive disorder
    f. Acquired Childhood Aphasia
    g. Learning disability
    h. Other developmental disabilities: deaf-blind, cerebral palsy and multiple disabilities.

Unit 3: Assessment of Children with Language Disorders

a) Preliminary components of assessment: Case history, screening, evaluation of environmental, linguistic & cultural variables.
b) Methods to assess children with language disorder: Formal versus informal assessment; types of assessment materials: assessment scales, observational checklists, developmental scales; standardization, reliability, validity, sensitivity and specificity of test materials.
c) Informal assessment-pre-linguistic behaviour, play, mother-child interaction, language sampling: planning and collecting representative sample; strategies to collecting language sample, audio-video recording, transcription
d) Analysis of language sample: Specific to various components of language such as phonology, morphology, syntax, semantics and pragmatics.

e) Test materials for assessing language skills in English and Indian language, Assessment of Language Development, 3D Language Assessment Test, Linguistic Profile Test, Com-DEALL checklist,
f) Overview of tests used by psychologists for assessment of children with developmental delay and intellectual disability: e.g Madras Developmental Program Scale, Bayley's Scale for infant and toddler development and others
g) Overview of tests used by psychologists/ developmental and behavioural pediatricians for assessment and diagnosis of children with autism spectrum disorder: Modified-Checklist for Assessment of Autism in Toddlers, Indian Scale for Assessment of Autism (ISAA), INCLEN Diagnostic Tool, Autism Diagnostic Observation Schedule (ADOS)
h) Overview of tests used by psychologists/ Developmental & Behavioural pediatricians for children with ADHD - DSM 5 checklist, Connors Rating scales and others
i) Overview of tests for assessment of language for children with Acquired childhood aphasia (CAAST),
j) Overview of tests for assessment of language and literacy for children with learning disability (Early Reading skills, Early Literacy Screening Test, NIMH battery for assessment of Learning Disability and others). Dyslexia assessment for languages in India (DALI) and others
k) Documenting assessment results: diagnostic report, summary report and referral report specific to disorder.
l) Differential diagnosis of language disorders in children.

Unit 4: Management of Language Disorders in Children - I

a) General principles and strategies of intervention in children with language impairment–purpose of intervention, basic approaches to language intervention (developmental or normative approach, functional approach).
b) Choice of language for intervention, incorporating principles of multiculturalism into treatment activities.

c) Overview of approaches and techniques of intervention for to address language disorders in children with different developmental disorders
d) Description and steps involved in specific language intervention techniques: Incidental teaching, self-talk, parallel talk, expansion, extension, recasting, joint routines, joint book reading, whole language, modifying linguistic input, communicative temptations drill, modeling, Focused stimulation, vertical structuring, milieu teaching, Redundancy, chunking.

Unit 5: Management of Language Disorders in Children - II

a) Overview of Augmentative and alternative communication–types (aided and unaided) and application in child language disorders.
b) Importance of team approach – Functions of professional team members like medical/ surgical/ Physiotherapy/ Occupational therapy/ psychologists etc.
c) Importance and role of caregivers and family in intervention
d) Benefits, concessions and rights for children with language disorders
e) Use of technology and tele-rehabilitation in language intervention

Recommended Reading

1. Bhatia, T. K. &Ritchie,W. C. (2014).Handbook of Bilingualism and multilingualism. 2nd Ed. East Sussex, Wiley Blackwell.
2. Hegde, M. N. (2017). Assessment of Communication Disorders in Children: Resources and Protocols (3rd ed.). San Diego: Plural Publishing Group.
3. Hegde, M.N. (2005). Treatment protocols for language disorders in children–Vol. 1 &2. San Diego: Plural Publishing
4. Kaderavek, J. N. (2015). Language disorders in children: Fundamental concepts of assessment and intervention. 2nd Ed. USA: Pearson Education Inc.

5. Norbury, P. R. & Courtenay F. (2012). Language Disorders from Infancy through Adolescence: Listening, Speaking, Reading, Writing, and Communicating. Missouri: Elsevier Mosby.
6. Owens, R.E. (2008).Language development: An introduction (7th ed.).Boston: Pearsons.
7. Paul, R., Norbury, C., & Gosse, C. (2018). Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating (5th ed.). St.Louis, MO: Mosby.
8. Rout, N & Kamraj, P. (2014). Developing Communication-An Activity Book. A publication by NIEPMED, Chennai. Freelydownloadablefromhttp://niepmd.tn.nic.in/publication.php. ISBN 978-81-928032-41.
9. Shyamala, K. Chengappa (2012).Language disorders in Children. Mysore, India: Central Institute of Indian Languages.
10. Singleton, N. C., & Shulman, B. B. (2013). Language development: Foundations, processes, and clinical applications. Jones & Bartlett Publishers.

Practicum

a) Record mother-child interaction of one typically developing child each in the age range of0-1, 1-2, 2-4, 4-6 and 6-8 years of age. Compare linguistically the out puts from the mother and the child across the age groups. Make inferences on sociocultural influences in these interactions.
b) Make a list of loan words in two familiar languages based on interaction with 10 typically developing children each in the age range of 2-4, 4-6, 6-8 and 8-10years. Discuss the influence of bi-or multilingualism on vocabulary.
c) Record a conversation and narration sample from 3 children, one child each who are in preschool, kindergarten, and primary school. Perform a language transcription and analyze for form, content and use.

d) Administer 3D LAT, ALD, LPT, ComDEALL checklist on any 2 typically developing children.
e) Draft a diagnostic report and referral letter for a child with language disorder.
f) Demonstrate general language stimulation techniques and discuss the clinical application.
g) Demonstrate specific language stimulation techniques with appropriate materials and discuss its clinical applications.
h) Draft Subjective Objective Assessment Plan (SOAP) for a pre-recorded sample of a 45minute session of intervention for a child with language disorder.
i) Draft a lesson plan for a child with language disorder.
j) Draft a discharge summary report for a child with language disorder

Group work

a) Record mother-child interaction of one typically developing child each in the age range of 0-1, 1-2, 2-4, 4-6 and 6-8 years of age. Compare linguistically the outputs from the mother and the child across the age groups. Make inferences on sociocultural influences in these interactions.
b) Make a list of loan words in two familiar languages based on interaction with 10 typically developing children each in the age range of 2-4, 4-6, 6-8 and 8-10 years. Discuss the influence of bi-or multilingualism on vocabulary.
c) Make a flier/ PowerPoint/ video for creating awareness on language disorders in children.

Individual work

a) Record conversation and narration samples of3 children (one child each from preschool, kindergarten, and primary school). Perform a language transcription and analyze for form, content and use.

b) Take a detailed case history and administer 3D LAT or REELS, ComDEALL checklist and ALD or MTCDM or language test in regional language on one typically developing child in the age range of 1 to 3 years and draft a language assessment report.
c) Take a detailed case history and administer LPT or ALD or language test in regional language on one typically developing child above the age of 3 years.
d) Observe one complete language assessment of a child with language disorder/ deficit and draft a diagnostic report and referral letter for the child with language disorder.
e) Demonstrate (in role play format) the specific language stimulation techniques (listed in theory paper) with appropriate materials and discuss its clinical applications.
f) Draft Subjective Objective Assessment Plan (SOAP) for a pre-recorded sample of a 45minute session of intervention for a child with language disorder.
g) Draft a therapy plan for a child with language disorder based on one detailed assessment report presented and discussed in class.
h) Draft one discharge summary report for a child with language disorder based on one detailed assessment report presented and discussed in class.

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B2.2 M : Diagnostic Audiology – Basic

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. explain masking and carryout audiometry with masking
b. carryout subjective calibration and daily listening checks of the audiometer,
c. explain the theoretical basis of objective calibration of audiometers
d. apply appropriate test battery of behavioural tests to differentially diagnose cochlear and retrocochlear pathology,
e. apply appropriate test battery of behavioural tests to identify functional hearing loss
f. explain the origin of otoacoustic emissions and record the same in adults and children

Unit 1: Clinical Masking & Calibration

a) Purpose and rationale of clinical masking: Interaural attenuation and factors affecting interaural attenuation,
b) Different types of stimulus employed in clinical masking, minimum and maximum masking level for masking
c) Different procedures for masking during pure tone audiometry, speech audiometry
d) Definition and purpose of calibration, Daily listening checks and subjective calibration
e) Objective calibration of intensity through different transducers (air conduction, bone conduction, sound field)
f) Objective calibration of frequency and distortion

Unit 2: Introduction to Diagnostic Audiology

a) Concept of clinical decision analysis (sensitivity, specificity, true positive, true negative, false positive, false negative and hit rate)
b) Screening tests for hearing loss, difference between screening and diagnostic test
c) Characteristics of a good diagnostic test: behavioural and physiological,
d) Need for test battery approach in auditory diagnosis and integration of the audiological tests results, Cross-check principle
e) Communicating results of screening and diagnostic tests to clients/caretakers and making appropriate referrals

Unit 3: Behavioural Tests to Diagnose Cochlear Pathology and Retro-cochlear Pathology

a) Behavioural and Clinical indications for cochlear pathology, retro-cochlear pathology,
b) Physiological bases of recruitment/softness imperception and adaptation,
c) Behavioural tests of recruitment/softness imperception: ABLB, MLB, dynamic range
d) Tests of adaptation, SISI
e) PIPB function, Brief tone audiometry, Bekesy audiometry
f) Test to identify dead regions of cochlea.

Unit 4: Behavioural Tests to Diagnose Cochlear Pathology, Retro-Cochlear Pathology, Functional Hearing Loss

a) Behavioural and clinical indicators of functional hearing loss
b) Pure tone tests including tone in noise test, Stenger test, Bekesy audiometry, Brief tone audiometry, pure tone DAF
c) Speech tests including Lombard test, Stenger test, lip-reading test, Doerfler-Stewert test, Low level PB word test, Yes-No test, DAF test
d) Identification of functional hearing loss in children: Swinging story test, Pulse tone methods
e) Counselling clients with functional hearing loss

Unit 5: Otoacoustic Emissions

a) Origin and classification of OAEs
b) Principle of instrumentation used for recording OAEs
c) Recording and interpretation of OAEs: SOAE, TEOAEs, and DPOAEs
d) Clinical applications of OAEs: SOAE, TEOAEs, and DPOAEs

e) Contralateral suppression of OAEs and its clinical implications

Recommended Reading

1. DeRuiter, M. & Ramachandran, V. (2016). Basic Audiometry Learning Manual (3rd edition). Plural Publishing, Inc.
2. Dhar, S., & Hall, J.W. (2018). Otoacoustic Emissions: Principles, Procedures, and Protocols. (2nd edition). Thieme.
3. Gelfand, S. A. (2022). Essentials of Audiology. (5th edition). Thieme.
4. Katz, J., Chasin, M., English, K., Hood, L.J & Tillery, K.L. (2019). Handbook of Clinical Audiology. (7th edition). Wolters Kluwer.
5. Kramer, S., & Brown, D. K. (2021). Audiology: science to practice. (4th edition). Plural Publishing.
6. Martin, F. N., & Clark, J. G. (2018). Introduction to audiology (13th edition). Pearson
7. Oeding, K.A.M., Listenberger, J., Smith, S. (2016). The Audiogram Workbook. Thieme.
8. Stach, B.A., & Ramchandran, V. (2021). Clinical Audiology: An Introduction. (3rd edition). Plural Publishing, Inc.
9. Valente, M., & Valente, L.M. (2020). Adult Audiology Casebook (2nd edition). Thieme.

Practicum

a) Carry out clinical masking on 10 normal hearing individuals with simulated conductive hearing loss and carry out clinical masking on 5 individuals with conductive hearing loss and 5 individuals with sensorineural hearing loss.
b) Carryout daily listening checks and subjective calibrations 20 times and observe objective calibration once

c) Administer ABLB, MLB and prepare ladder gram (ABLB to be administered by blocking one ear with impression material)
d) Administer classical SISI on 3 individuals and note down the scores
e) Administer tone decay tests (classical and its modifications) and note down the results (at least 3 individuals)
f) Administer Bekesy audiometry
g) Administer Brief tone audiometry
h) Plot PIPB function using standardized lists in any 5 individuals
i) Administer the tests of functional hearing loss (both tone based and speech based) by asking subject to malinger and having a yardstick of loudness.
j) Record TEOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies. Note down the stimulus stability and the overall SNR (10 ears).
k) Record DPOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies (10 ears).

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B2.3 MC : Linguistics and Phonetics

Hours 45 **Marks 75 : Credits 3**

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

a. different branches and aspects of linguistics
b. characteristics and functions of language
c. different branches of phonetics, applied linguistics, and phonology
d. morphology, syntax, semantics, pragmatics
e. acquisition of language and factors affecting it, and
f. bi/multilingualism and related issues

Unit 1: Introduction to Linguistics

a) Different branches of linguistics: Applied linguistics, sociolinguistics, psycholinguistics, neurolinguistics and clinical linguistics
b) Language characteristics and functions. Difference between animal communication systems and human language
c) Morphology – concepts of morph, allomorph, morpheme, bound free and compound forms, roots etc. Processes of word formation: Content and function words
d) Endocentric and exocentric constructions,
e) Inflection and derivation, paradigmatic and syntagmatic relationship
f) Concepts in linguistics: Competence vs. performance: Langue vs. parole etc.

Unit 2: Phonetics and Phonology

a) Introduction to phonetics: Articulatory, acoustic, and auditory phonetic
b) Articulatory classification of sounds – segmental and supra-segmental. Classification description and recognition of vowels and consonants
c) Transcription systems with special emphasis on IPA.
d) Introduction to phonology, classification of speech sounds on the basis of distinctive features
e) Phonotactics: Phonotactic patterns of English and Indian languages
f) Phonemic analysis – principles and practices
g) Phonological processes

Unit 3: Morphology, syntax, semantics and applied linguistics

a) Morphology – concepts of morph, allomorph, morpheme, roots, compound forms - endocentric and exocentric constructions, free and bound morphemes, morphemic analysis - inflection and derivation,
b) Syntax – concepts of phrases and clauses, sentence and its types,
c) Different methods of syntactic analysis – Immediate constituent analysis, Phrase structure, grammar, transformational generative grammar– deep structure versus surface structure, acceptability versus grammaticality.
d) Introduction to the major types of transformations
e) Processes of word formation: Content and function words,
f) Semantics, semantic relations, semantic feature theory
g) Pragmatics and discourse

Unit 4: Language acquisition

a) Issues in first language acquisition: Pre-linguistic stages, linguistic stages
b) Acquisition of phonology, morphology, syntax, semantics, and pragmatics
c) Language and cognition

d) Applied linguistics with special reference to communication disorders
e) Usefulness of morphemic and syntactic analysis in planning speech-language therapy

Unit 5: Bi/multilingualism

a) Introduction to the language families of India
b) Issues related to second language acquisition and factors influencing it
c) Inter-language theory, language transfer and linguistic interference
d) Differences between first and second language acquisition/learning
e) Bilingualism/Multilingualism
f) Indian writing systems

Recommended Reading

1. Allwright, Dick: Hanks, Judith (2009). The Developing Language Learning: An Introduction to Exploratory Practice. Basingstoke: Palgrave MacMillan.
2. Ball & Martin (1995). Phonetics for Speech Pathology. Delhi: AITBS Publishes
3. Ball, Rahilly & Tench (1996). The phonetic transcription of disordered speech. San Diego: Singular Publishing Group Inc.
4. Berk. Laura E. (2009). Language Development. Boston: Pearson Education/Allyn & Bacon.
5. Bhatia, Tej K., and William C. Ritchie (eds.) (2006). Bilingualism in South Asia. In: Buch. A., Erschler, D. BJäger, G. Lupas, A (2013). Towards automated language classification: A clustering approach.
6. Foster-Cohen, S. (2009): Language acquisition. London: Palgrave Macmillan.
7. Sousa. David, A. (2011). Handbook of Bilingualism. Oxford: Blackwell Publishing.
8. Kennison. S. (2013). Introduction to language development. Los Angeles. CA: Sage.
9. Shriberg & Kent (1982). Clinical phonetics. New York: John Wiley & Sons

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B2.4 MC Otolaryngology

Hours 45 **Marks 75 : Credits 3**

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

a. identify the causes and signs/symptoms of different pathological conditions of the ear leading to hearing loss,
b. understand the principles of management of diseases of pathological conditions of the ear leading to hearing loss,
c. identify the causes and signs/symptoms of different pathological conditions of the laryngeal system leading to voice disorders.

Unit 1: External and Middle Ear and Their Disorders

a) Clinical anatomy of external and middle ear
b) Congenital anomalies of the ear
c) Diseases of the external ear – tumours, perforation and ruptures of the tympanic membrane, and Eustachian tube dysfunction
d) Otitis media with effusion
e) Cholesteatoma and chronic suppurative otitis media
f) Otosclerosis
g) Trauma to the temporal bone
h) Facial nerve and its disorder

Unit 2: Inner Ear and its Disorders

a) Clinical anatomy of inner ear
b) Congenital anomalies
c) Meniere's Disorder
d) Ototoxicity
e) Presbycusis
f) Disorders of the vestibular system including vestibular Schwannoma
g) Tinnitus and medical line of treatment
h) Overview of surgical techniques for restoration and preservation of hearing

Unit 3: Oral Cavity and its Disorders

a) Anatomy and physiology of the oral cavity
b) Malformation and inflammations of lip and oral cavity
c) Benign, premalignant, and malignant tumours of the oral cavity
d) Clinical anatomy and physiology of pharynx
e) Inflammatory conditions of the pharynx, tonsils and adenoids
f) Benign, premalignant, and malignant tumours of the pharynx

Unit 4: Larynx and its Disorders

a) Clinical anatomy and physiology of larynx
b) Clinical examination of larynx
c) Stroboscopy - technique, procedure, interpretation and precautions
d) Congenital laryngeal pathologies
e) Inflammatory conditions of the larynx
f) Benign and malignant tumours of the larynx
g) Laryngectomy – overview of surgical procedure
h) Phonosurgery and other voice restoration surgeries
i) Airway management procedures

Unit 5: Esophagus and its Disorders

a) Clinical anatomy and physiology of esophagus
b) Clinical examination of esophagus
c) Congenital anomalies of esophagus
d) Inflammatory conditions of esophagus
e) Benign and malignant tumours of esophagus
f) Medical management of these pathological conditions

Recommended Reading

1. Clarke, R. W. (2022). Diseases of the Ear, Nose & Throat in Children: An Introduction and Practical Guide. CRC Press.
2. Dhingra, P. L. & Dhingra, S. (2017). Diseases of Ear, Nose and Throat (Seventh edition). Elsevier.
3. Maqbool, M., & Maqbool, S. (2013). Textbook of Ear, Nose and Throat Diseases (1st edition). Jaypee Brothers Medical Publishers.
4. Nawka, T., & Hosemann, W. (2005). Surgical procedures for voice restoration. GMS current topics in otorhinolaryngology, head and neck surgery, 4.
5. Probst. R., Grevers, G., & Iro. H. (2006). Basic Otolaryngology: A Step-By-Step Learning Guide. Thieme.
6. Rosen, C. A. (2005). Stroboscopy as a research instrument: development of a perceptual evaluation tool. The Laryngoscope, 115(3), 423-428.

B2.5 MO: Clinical Counselling

Hours 15 **Marks 50: Credits 1**

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

a. Understand the Fundamentals of Clinical Counselling
b. Identify Types and Skills of Counselling
c. Explore Theoretical Foundations of Counselling
d. Examine the Ethical and Practical Issues in Counselling
e. Contextualize Counselling within the Indian Framework

Unit 1: Introduction to counselling

a) Objectives of counselling
b) Introduction and definition of clinical counselling
c) Nature and scope of clinical counselling
d) Current status of clinical counselling, overview of contemporary counselling models
e) Psychotherapy
f) Goals of counselling and Counselling in India

Unit 2: Types and skills of counselling

a) Types of counselling: Levels, individual and group counselling, counselling interviews,
b) Problem areas which need counselling, different setting in which counsellors work
c) Skills – Characteristics of a counsellor, Micro skills required for counselling
d) Role of psychological tests in counselling

Unit 3: Theoretical perspectives of clinical counselling

a) Need for theory
b) Counselling theories
c) Theories based on the work of Sigmund Freud
d) Other theories: Cognitive, Behavioural, Humanistic theories
e) Directive approach, integrative view of theories

Unit 4: Issues in counselling

a) Introduction
b) Confidentiality and termination
c) Client counsellor relationship
d) Ethical consideration in clinical counselling

Recommended Reading

1. Clinical Counselling in Context: An Introduction. (2014). United Kingdom: Taylor & Francis.
2. The Practice of Counselling in Primary Care. (1999). United Kingdom: SAGE Publications.
3. A Beginner′s Guide to Training in Counselling & Psychotherapy. (2001). United Kingdom: SAGE Publications.
4. What is Psychotherapy?. (2018). United Kingdom: Duckworth Books.
5. Bayne, R. (1995). Psychological type and counselling. British Journal of Guidance & Counselling, 23(1), 95-106.

6. Edwards, D. J. A., & Young, C. (2013). Assessment in routine clinical and counselling settings. Psychological assessment in South Africa: Research and applications, 320-335.
7. Lees, J. (2014). What is clinical counselling in context?. In Clinical Counselling in Context (pp. 6-19). Routledge.
8. Stimpson, Q. (Ed.). (2003). Clinical counselling in voluntary and community settings. Psychology Press.
9. Stimpson, Q. (Ed.). (2003). Clinical counselling in voluntary and community settings. Psychology Press.

B2.6 M: Clinicals in Speech-language Pathology

Hours 30+ **Marks 75 : Credits 1**

General Considerations

1) Clinical work should be primarily linked to the theory courses of the semester.
2) After completion of clinical postings in Audiology, the student will have the concept (Know), ability to apply (Knowhow), demonstrate in a clinical diary/log book (Show), and perform (Do) the following on clinical population. The students will be able to document observations made during clinical work.

Know

a) study normative data (Indian / Western) relating to phonology, semantics, syntax, morphology, pragmatics, voice, articulation, fluency and prosody, and relate them to clinical population,

b) record case history of a minimum of four affected persons and compare it with that of normal persons,

c) transcribe speech samples and identify instances of deviance with reference to speech samples of normal persons,

d) list various speech & language stimulation techniques with descriptions and illustrations,

e) observe and learn evaluation/assessment process and counselling of at least three children and adults with fluency disorders,

f) , Procedures to obtain a speech language sample for speech and language assessment from children of different age groups such as preschoolers, primary school and older

age groups.

g) , The tools to assess language impairment in children (with hearing impairment, specific language impairment, Intellectual disabilities, Autism Spectrum Disorders).

h) observe management / therapeutic procedures with children and adults with speech and language disorders.

i) prepare a diagnostic and therapy kit for a person with stuttering or delayed speech-language development,

j) familiarize with the basics of counselling procedures – client as well as parents.

k) Document test materials (Indian/ Western) used in the assessment of child language disorders.

Knowhow

a) Count the number of phonemes and syllables and identify the class of words, phrases, syllable structure, and syntactic structure in a recorded standard passage (native language and English)

b) Determine the speech and language skills of individuals with and without speech and language disorders and perceptually analyse the variations in these skills across age and gender.

c) To evaluate speech and language components using informal assessment methods.

d) Differentially diagnose SLI, ASD, ADHD, and ID

e) . Evaluate speech and language characteristics of childhood aphasia using available test tools.

Show

a) Perform transcription of recorded speech samples in native language and English.

b) Demonstrate on how to perform a detailed interview of children with language disorders and their parents

c) . Evaluate the speech and language skills of children with delay in speech and language development using standardized test material.

d) Diagnose ADHD and ASD using a standardized test tool.

e) Diagnose learning disability using an available screening/ diagnostic tool

f) Demonstrate speech- language stimulation techniques and other approaches used for management of child language disorders and discuss its clinical applications.

g) Use at least one evidence-based intervention approach/technique (including speech and language stimulation techniques) used for the treatment of children with language disorders in your therapy session and document the outcome.

h) . Record a conversation sample of toddler (2-3 years), preschool (3-5 years), and school-age (5-6 years) children. Perform a language transcription and analyse for form, content, and use.

i) Record mother-child interaction of typically developing children of different age groups. Compare linguistically the outputs from mother and child across the age groups. Make inferences on the socio-cultural influences in these interactions.

j) Make a list of loan words in 2 familiar languages based on interaction with typically developing children from 2 to 10 years. Discuss the influence of bilingualism or multilingualism on vocabulary.

k) Assessment of pre-linguistic skills-minimum of two children

Do

a) Perform case history for children and adults with speech-language disorders.

b) Prepare a diagnostic kit used for the assessment of speech-language disorders.

c) Prepare a therapy kit used for speech-language therapy.

d) Case history-minimum of three children with speech and language disorders.

e) Language evaluation report – minimum of three children

f) Plan and prepare a low tech AAC device for children with language disorder.

B2.7 M : Clinicals in Audiology

Hours 30+ **Marks 75: Credits 1**

a. Clinical work should be primarily linked to the theory courses of the semester.
b. After completion of clinical postings in Audiology, the student will have the concept (Know), ability to apply (Knowhow), demonstrate in a clinical diary/log book (Show), and perform (Do) the following on clinical population.

Know

a) Methods to calibrate audiometer.
b) Materials commonly employed in speech audiometry.
c) Calculation pure tone average, % of hearing loss, minimum and maximum masking levels.
d) Different types of hearing loss and its common causes

Knowhow

a) To obtain detailed case history from clients or parents/guardians.
b) To carryout commonly used tuning fork tests.
c) To administer pure tone audiometry including appropriate masking techniques on adults
d) To administer tests to find out speech reception threshold, speech identification scores, most comfortable and uncomfortable levels on adults.

Show

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

Do

a) Case history on at least 5 adults and 3 children with hearing disorders
b) Tuning fork test on at least 5 individuals with conductive and 5 individuals with sensori-neural hearing loss
c) Pure tone audiometry with appropriate masking on 5 individuals with conductive, 5 individuals SN hearing loss and 3 individuals with unilateral/asymmetric hearing loss
d) Speech audiometry on 5 individual with conductive, 5 individuals SN hearing loss and 3 individuals with unilateral/asymmetric hearing loss

✓ Internal evaluation shall be based on attendance, clinical diary, log book and learning conference.

✓ External evaluation: Spot test, OSCE, Record, Viva-voce, case work

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Semester 3

B3.1 M : Voice Disorders and Laryngectomy

Hours 75 (45 + 30) **Marks 100 : Credits 4**

Objective: After completing the course, the students would be able to

a. explain the basic concepts of voice including classification of different voice disorders
b. assess and diagnose different voice disorders
c. manage voice disorders through therapy
d. assess the needs of persons with laryngectomy and plan management strategies, and
e. counsel persons with dysphonia and their family members/

Unit 1: Basic concepts in voice and its production

a) Definition and functions of voice; Parameters of voice
b) Anatomy and physiology of respiratory system for phonation; Laryngeal anatomy – Structural support, muscles, vocal fold microstructure, blood supply, and innervations - Aerodynamic myo-elastic theory of voice production
c) Voice mechanics – Physiologic, acoustic and aerodynamic correlates of voice
d) Pitch and loudness changing mechanism, voice registers and voice quality; Vocal tract resonance and voice quality
e) Development of voice: Birth to senescence

Unit 2: Characteristics and pathophysiology of voice disorders

a) Definition of voice disorder, pathologies of the laryngeal mechanism: classification of voice disorders, incidence, and prevalence
b) Aetiology of voice disorders: Phonotraumatic vocal behaviours, medical related etiologies, primary disorder etiologies and personality related etiologies
c) Non-organic voice disorders: functional disorders, psychosomatic- functional aphonia and physiological- Phonotrauma, puberphonia
d) Congenital voice disorders
e) Neurological voice disorders
f) Voice problems in systemic illnesses and endocrine disorders
g) Voice problems in transgenders and elderly
h) Voice problems in professional voice users: teachers and singers

Unit 3: Assessment of voice disorders

a) Referral sources, medical examination and team approach
b) Protocol for voice assessment: components and philosophies (ICF, ICD)
c) Clinical voice laboratory: principles of instrumental measurements – recording of data and storage; patented soft wares, free wares
d) Perceptual evaluation of voice: GRBAS, CAPE -V
e) Visualization procedures- indirect laryngoscopy, video laryngoscopy, stroboscopy&high speed imaging
f) Acoustic analysis of voice: F0 related measures, intensity related measures, quality related measures, phonetogram, DSI, non-linear analysis
g) Electroglottography and inverse filtering procedures
h) Aerodynamic analysis of voice
i) Self-evaluation of voice: PROM, VHI, V-DOP, VFI
j) Reporting of voice findings, normative comparisons, differential diagnosis

Unit 4: Management of voice disorders

a) Voice therapy orientation: Principles, goal setting and approaches
b) Vocal hygiene and preventive counselling
c) Symptomatic voice therapy
d) Psychological approaches to voice therapy
e) Physiological approach
f) Holistic voice therapy approaches
g) Eclectic voice therapy approach
h) Medical and surgical treatment for voice disorders; Post-operative care
i) Professional voice care

Unit 5: Laryngectomy

a) Causes, symptoms and classifications of laryngeal cancers
b) Multidisciplinary team in the management of persons with laryngeal cancer
c) Surgery for laryngeal cancers: types and outcome
d) Assessment of speech and communication skills of laryngectomee individuals: Pre and post-operative considerations
e) Esophageal speech: candidacy, types of air intake procedures, speech characteristics, complications and contraindications.
f) Tracheoesophageal speech: candidacy, types of TEP, fitting of prosthesis, speech characteristics, complications and contraindications.
g) Artificial larynx: types, factors for selection, output characteristics, techniques for efficient use of artificial larynx, complications and contraindications.
h) Other remedial procedures: Pharyngeal speech, buccal speech, ASAI speech, gastric speech.

Recommended Reading

1. Behrman, A., Haskell, J. (2019). Exercises for Voice Therapy: Third Edition. United States: Plural Publishing, Incorporated.
2. Boone, D. R., McFarlane, S. C., Von Berg, S. L. &Zraick, R, I. (2014): The Voice and Voice Therapy. (9th Ed.). Englewood Cliffs, Prentice-Hall, Inc. New Jersy.
3. Makiyama, K., & Hirano, S. (Eds.). (2017). Aging voice (No. 25703). Springer Singapore.
4. Martin, S. (2017). Working with Voice Disorders: Theory and Practice. United Kingdom: Taylor & Francis.
5. Rosen, D. C., Sataloff, J. B., Sataloff, R. T. (2020). Psychology of Voice Disorders. United States: Plural Publishing, Incorporated.
6. Sapienza, C., Hoffman, B. (2020). Voice Disorders. United States: Plural Publishing, Incorporated.
7. Sataloff, R. T. (2017). Treatment of Voice Disorders, Second Edition. United States: Plural Publishing, Incorporated.
8. Stemple, J. C., Roy, N., & Klaben, B. (2020). Clinical Voice Pathology: Theory & Management (6th Ed.). San Diego: Plural publishers.
9. Watts, C. R., & Awan, S. N. (2019). Laryngeal Function and Voice Disorders: Basic science to clinical practice. (1st Ed.). Thieme Medical Publishers Inc.
10. Weich, D. (2016). Voice Disorders: Epidemiology, Treatment Approaches and Long-term Outcomes. United Kingdom: Nova Science Publishers.

Practicum

a) Identify and label the structures of the larynx on a chart or model of larynx. Draw the different stages of vocal fold movement to explain the phonation
b) Record phonation and speaking samples (counting numbers) from five children, adult men, adult women, geriatric men and geriatric women. Note recording parameters and differences in the samples.

c) Make inferences on age and sex differences across the samples obtained in the previous experiment using perceptual voice profiling. Make a note of differences in pitch, loudness, quality and voice control.
d) Perform an acoustic voice analysis on five abnormal voice samples sample and generate a voice report based on acoustic findings.
e) Perform MPT and s/z ratio. Infer differences across age and sex.
f) Perform spirometry. Infer differences across age and sex.
g) Assess five abnormal voice samples using GRBAS and CAPE V.
h) Observe and document findings from five laryngeal examinations (pre-recorded stroboscopy sample)
i) Administer VDOP, VFI & VHI on five individuals.
j) Prepare a vocal hygiene checklist.
k) Demonstrate therapy techniques such as vocal function exercise, resonant voice therapy, digital manipulation, relaxation exercises and eclectic voice therapy
l) Prepare a pamphlet for post-surgical voice care for benign voice disorders and for laryngectomy.
m) Analyse the speech profile of 5 individuals with laryngectomy.
n) Identify parts of an artificial larynx and explore its use.
o) Prepare a checklist / pamphlet illustrating care of the stoma and T- tubes in vernacular.

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B.3.2 M: Amplification Devices

Hours 75 (45 + 30) **Marks 100: Credits 4**

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

a. assess candidacy for hearing aids and counsel accordingly
b. evaluate the listening needs and select appropriate hearing aid
c. program digital hearing aids as per the listening needs of the client
d. assess the benefit from the hearing aid using subjective and objective methods
e. take ear impression and prepare appropriate earmold
f. counsel the parents/care givers at all stages, and
g. make appropriate selection of assistive listening devices and advise the clients

Unit 1: Types of Hearing Aids

a) Historical development of hearing aids: A brief overview
b) Review of basic elements of hearing aids: Microphone, Amplifier, Receiver/vibrator, Cords, Batteries.
c) Classification and Types of hearing aids:
    a. Body level, Ear level, RIC, ITC, CIC, IIC,
    b. Binaural, pseudo binaural, monaural
    c. Analog, Programmable, trimmer digital and digital hearing aids
    d. CROS hearing aids
d) Group amplification: hard wired, induction loop, FM, infrared
e) Assistive listening devices

Unit 2: Technological Aspects in Hearing Aids

a) Output limiting and issues related to them: peak clipping, compression
b) Concept and use of compression in hearing aids: BILL, TILL, PILL, Wide Dynamic Range Compression, Syllabic Compression, Dual Compression
c) Signal processing in hearing aids: Speech enhancing technology, Microphone directionality, Noise reduction algorithms
d) Extended low frequency amplification, frequency lowering technology (transposition, compression).
e) Digital wireless technologies & its application in hearing aids
f) Recent advances in hearing aids

Unit 3: Electro-acoustic Measurements for Hearing Aids

a) Need for Electro-acoustic measurements
b) Instrumentation of electro-acoustic measurements, Environmental tests
c) Purpose and Parameters to be considered: OSPL90, SSPL90, HFA SSPL90, Gain, Full on Gain, HFA Full on Gain, Reference test Gain, Basic Frequency Response, Total Harmonic distortion, Intermodulation Distortion, input Output functions, instrumentation, procedure,
d) Variables affecting EAM, EAM of digital hearing aids
e) National and International standards for hearing aids: BIS, IEC and ANSI

Unit 4: Selection and Programming of Hearing Aids

a) Pre-selection factors
b) Selecting linear and nonlinear digital hearing aids
c) Hearing aid selection using prescriptive procedures
d) Hearing aid selection using comparative procedures.
e) Programming of hearing aids

f) Over the counter hearing aids
g) Care, maintenance and troubleshooting of hearing aids
h) Counselling and orienting the hearing aid user and significant others

Unit 5: Mechano-acoustic Couplers (Ear moulds)

a) Different types of earmold
b) Procedure for making hard moulds and soft moulds.
c) Applications of laser and 3d-printing for ear moulds, UV curing methods.
d) Special modifications in the ear moulds: Vents (diagonal and parallel), deep canal moulds, short canal, horns, Libby horn, reverse horn, acoustic modifier.
e) Effects of mechano-acoustic couplers on the hearing aid output.

Recommended Reading

1. Dillon. (2012). Hearing Aids (2 edition). Thieme Medical and Scientific Publisher.
2. Hall, J. W., & Mueller, H. G. (1998). Audiologists' Desk Reference: Audiologic management, rehabilitation, and terminology. Singular Publishing Group.
3. Kates, J. M. (2008). Digital Hearing Aids (1 edition). San Diego: Plural Publishing Inc.
4. Metz, M. J. (2014). Sandlin's Textbook of Hearing Aid Amplification: Technical and Clinical Considerations. Plural Publishing.
5. Mueller, H. G., Hawkins, D. B., & Northern, J. L. (1992). Probe Microphone Measurements: Hearing Aid Selection and Assessment. Singular Publishing Group.
6. Mueller, H. G., Ricketts, T. A., & Bentler, R. A. (2014). Modern Hearing Aids: Prefitting Testing and Selection Considerations. San Diego, CA: Plural Publishing Inc.
7. Sandlin, R. E. (Ed.). (1989). Handbook of Hearing Aid Amplification: Clinical Considerations and Fitting Practices v. 2. Boston: Singular Publishing Group.

8. Sandlin, R. E. (Ed.). (1993). Understanding Digitally Programmable Hearing AIDS. Boston: Allyn & Bacon.
9. Tate, M. (2013). Principles of Hearing Aid Audiology. Springer.
10. Taylor, B., & Mueller, H. G. (2021). Fitting and Dispensing Hearing Aids (3d edition). San Diego: Plural Publishing Inc.
11. Valente, M. (2002). Hearing Aids: Standards, Options, and Limitations. Thieme.

Practicum

a) Listen to the output of different types and classes of hearing aids (monaural, binaural, analog, digital hearing aids), in different settings.
b) Troubleshoot hearing aids: Check the continuity of the receiver cord using multimeter, measure the voltage of different sized batteries using multi meter, Check voltage of batteries different types and sizes
c) Carry out electroacoustic measurements of hearing aids
d) Program the hearing aid for different configuration and degrees of hearing loss (at least 5 different audiograms) using different prescriptive formulae
e) Program the hearing aid for different listening situations (at least 3 different situations)
f) Vary the compression settings in a digital hearing aid and note down the differences in the output
g) Observe assistive listening devices such as telephone amplifier, vibro-tactile alarms, note down the candidacy and their utility.
h) Administer a questionnaire to assess hearing aid benefit on 2 persons using hearing aids.
i) Carry out a role play activity of counselling a hearing aid user

j) Take impression for the ear mold using different techniques, different methods and using different materials

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B3.3 MC: Electronics and Acoustics

Hours75 (45 + 30) **Marks 100: Credits 3**

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

a. identify the types of power supply for clinics and biomedical instruments,
b. understand the basic aspects of digital signal processing and speech processing,
c. state the theoretical basis of acoustics required for audiologists,
d. understand the basic aspects of information technology, and
e. analyse the principles of working of major instruments used in assessment

Unit 1: Introduction to Electronics and Signals

a) Basic principle of operation and working of
    a. Variable resistors, digital potentiometers
    b. Inductors, transformers
    c. Amplifiers –concept of gain, Frequency response and bandwidth
b) Power supply
    a. DC power supply – block diagram description and working
    b. AC power supply, earthing, isolation transformers
    c. UPS
c) Analog and digital signal
    a. Decimal and Binary number system, conversion of decimal number to binary number, conversion of binary number to decimal number
    b. Analog signal & digital signal–Representation and comparison
    c. Converting analog signal to digital signal and digital to analog signal

Unit 2: Introduction to Acoustics

a) Physics of Sound
    a. Nature and Propagation of sound
    b. Frequency, wavelength, amplitude, velocity
    c. Sound pressure level
    d. Loudness, Phon, equal loudness contour
b) Sound propagation in closed rooms
    a. Reflection, transmission and absorption, absorption coefficient
    b. Reverberation, reverberation time, Sabine's formula, techniques to reduce reverberation time
    c. Sources of background noise in a room, speech to noise ratio
    d. Acoustically treated rooms – Basic requirements, concept and structure of rooms for hearing testing and sound recording.
c) Transducers
    a. Microphones- moving coil, condenser, electret etc
    b. Loudspeakers, headphones, receivers – moving coil and balanced armature

Unit 3: Basics of Sound Recording, Signal Representation and Digital Signal Processing

a) Representation of sound signal and sound recording
    a. Time domain
    b. Frequency domain
    c. Spectrogram
    d. System and software for sound recording
b) Fundamentals of digital signal processing (DSP)
    a. Basic structure of a digital processing system

b. Analog signal processing vs. digital signal processing – Comparison, merits and demerits
c. Applications of DSP in communication sciences and disorder.

c) Speech Processing
   a. Time domain methods of speech processing
   b. Frequency domain methods of speech processing

Unit 4: Introduction to Information Technology

a) Computer hardware
   a. Processor, mother board, hard disk, RAM
   b. Specification of personal computers and laptops
b) Software
   a. Operating systems-Types, comparison and functioning
   b. Application software used in Communication Sciences and disorder
   c. Mobile Apps-concept & functioning
c) Computer networking
   a. Structure of internet and worldwide web
   b. Local Area Network –structure and components
   c. Tele diagnosis & Tele rehabilitation

Unit 5: Instrumentation in Speech and Hearing

a) Common elements in instruments
   a. Pre-amplifiers and Power amplifiers
   b. Filters-role in signal processing, different types and their frequency response
b) Principle of operation, technology of
   a. Digital hearing aids
   b. Group amplification and Assistive Listening Devices

c. Audiometers
d. Middle ear analyzers
e. Systems for speech and voice analysis

c) Calibration of audiometers
   a. Equipment for calibration – sound level meter, artificial ear, artificial mastoid, couplers
   b. Equipment setup and procedure for output calibration of pure tone audiometer in AC and BC mode.

Recommended Reading

1. Crocker, M. J. (1998) Handbook of Acoustics, John Wiley and sons Inc., New York, USA
2. Dillon, H. (2012) Hearing Aids (2nd Edn), Thieme Publishers Inc., New York, USA
3. http://niepmd.tn.nic.in/publication.php. ISBN 978-81-928032-1-0.
4. Malvino. A., & Bates. D. (2015): Electronics principle (8th Edn): Mc Graw-Hill education.
5. Moser, P. (2015). Electronics and Instrumentation for Audiologists. Psychology Press.
6. Rout, N and Rajendran, S. (2014). Hearing aid trouble shooting and Maintenance, Published by National Institute for Empowerment of Persons with Multiple Disabilities, Chennai. Freely downloadable from
7. Speaks, C. E. (1999). Introduction to Sound: Acoustics for the Hearing and Speech Sciences (3 edition.). San Diego: Cengage Learning.
8. Udayashankara, V. (2022) Speech Signal Processing, I.K. International Pvt. Ltd. New Delhi
9. Villchur, E. (1999). Acoustics for Audiologists (1st Edn). San Diego, California: Delmar Cengage Learning.

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B3.4 MC : Psychology for Speech and Hearing

Hours 45 **Marks 100 : Credits 3**

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

a. explain the scope of clinical psychology and its significance for speech and hearing
b. apply the concept of normality and abnormality to communication disorders
c. describe the cognitive, motor, emotional and social development
d. apply theories of learning and therapy techniques based on learning principles to communication problems
e. understand the principles of neuropsychological assessment, and
f. get exposed to the basics of counselling.

Unit 1: Introduction to Psychology and Clinical Psychology

a) Introduction, definition, history, schools and branches of psychology.
b) Introduction to clinical psychology: Scope and meaning
c) Historical development: Modern clinical psychology
d) Scope and role of clinical psychology in communication sciences and disorders
e) Criteria of normality and abnormality
f) Models of mental disorders: biological, psychological social models

Unit 2: Assessment Procedures in Clinical Psychology

a) Case history and mental status examination - Summary of case history, diagnostic formulation and Diagnosis. Clinical interviewing. Clinical observation

b) Introduction to psychological assessment and psychological testing – definition, differences and similarities.
c) Types of psychological assessment.
d) Assessment of cognitive and adaptive functions, personality: Behavioural and vocational assessment
e) Classification of abnormal behaviour: history, need and rationale of classification. Current classificatory system: DSM and ICD

Unit 3: Developmental psychology

a) Child and developmental psychology: definition and scope: Meaning of growth, development and maturation: Principles and stages of development
b) Motor development: definition, principles, importance: Stages in motor development - early motor development, development during later childhood and adolescence, decline with age: Handedness
c) Cognitive development: Piaget's theory of cognitive development. Intelligence-evolutionary development of intelligence. Development of intelligence from early childhood to adolescence - decline with age.
d) Emotional development - components of emotions, characteristics of emotional behaviours, Beginning and development of emotional behaviour and patterns. Emotional changes through the life span.
e) Social development - Definition of Social development, Socialization – meaning. Pattern of social development. Development and characteristic of social behaviour and factors influencing it.

Unit 4: Principles of Learning and Behaviour Modification

a) Learning - definition and characteristics. Theories of learning: introduction, types - S-R theories, cognitive theories and mixed theories. Pavlov's classical conditioning.

b) Basic principles of learning - acquisition of CR, Extinction of CR, second order and higher order conditioning, generalization and discrimination Additional principles - Experimental neurosis, counter conditioning and cerebral conditioning
c) Skinner's operant conditioning – basics. Principles of operant conditioning - acquisition, elimination, maintenance of responses - operant generalization and discrimination. Factors influencing operant conditioning. Application of operant learning principles.
d) Behavioural assessment and diagnosis – problem behaviour assessment and skill behaviour assessment.
e) Therapeutic techniques based on learning principles. Skill behaviour management. Problem behaviour management

Unit 5: Neuropsychology and Counselling

a) Neuropsychology – scope. Neuropsychological tests and assessment
b) Neuropsychological management – theories and types of neuropsychological rehabilitation.
c) Application of neuropsychology in the field of speech and hearing
d) Counselling: Differences and similarities between guidance, counselling, and psychotherapy
e) Types of counselling: directive, non-directive, and eclectic counselling
f) Characteristics of a good counsellor Do's and don'ts in counselling

Recommended Reading

1. Anastasi, A. (1999). Psychological testing, London: Freeman
2. Baura, M (2004). Human Development and Psychology, Rehabilitation Council of India, New Delhi. ISBN: 81-7391-868-6
3. Coleman J.C. Abnormal psychology and modern life, Taraporevala Sons and Co.

4. Hurlock, E.B. (1981). Child development (VI Ed.). McGraw Hill International Book
5. Kline, P. (1993). The Handbook of Psychological Testing. Routledge
6. Lezak, M., Loring, D.W., and Hannay, H.J. (2004). Neuropsychological Assessment. Fourth Edition. New York: Oxford University Press
7. Morgon C.T., King R.A., Robinson N.M. Introduction to Psychology. Tata McGraw Hill Publishing Co.
8. Siegal M.G. (Ed). (1987). Psychological testing from early childhood through adolescence. International Universities Press.

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B3.5 MO: Genetics

Hours 15 **Marks 50 : Credits 1**

Objectives: After studying the course, the students will have

a. to know the basic principles of genetics, including the concepts of inheritance, genes, alleles, chromosomes, and DNA.
b. knowledge of the Mendelian inheritance patterns, including dominant and recessive traits, as well as the exceptions to Mendel's laws.
c. comprehended the various mutagens and types of gene and chromosomes mutations.
d. an understanding of the classification of hearing impairment and speech language disorders arsing due to genetic conditions.
e. an understanding of various genetic techniques in the diagnosis of the genetic defects.
f. to know the principles of genetic counselling in managing genetic disorders.

Unit 1: Basic concepts, terminologies and organization of genome

a) The definition of genetics, gene, genotype, phenotype.
b) The organization of the human cell with special emphasis on the nucleus.
c) Stages of mitosis and meiosis.
d) Significance of meiosis in maintaining ploidy between generation.
e) Organization of the human genome.
f) General structure of the human chromosome and its types.
g) General structure of the human gene.
h) Central dogma of molecular biology.
i) Significance of the human genome project.

Unit 2: Mutations

a) Mutation.
b) The classification of mutation.
c) Mutagens.
d) The classification of mutagens.

Unit 3: Inheritance patterns

a) Gene and allele.
b) Homozygous and heterozygous conditions.
c) Phenotype variation.
d) Dominant and recessive characters.
e) The principles of Modalism.
f) The Mendelian inheritance patterns.
g) The non-Mendelian inheritance patterns.
h) Calculation of risk of inheriting Mendelian disorders.
i) Epigenetics.

Unit 4: Genetics in speech & hearing and principles of genetic engineering

a) Classification of hearing impairment arsing due to genetic conditions.
b) Role of genetics in speech language disorders.
c) Role of genetic counselling in managing genetic disorders.
d) Methods for genetic analysis (Karyotyping, FISH, Sequencing).
e) Drawing Pedigree and analysis.
f) The principles of gene cloning.
g) The principles of gene therapy.

Recommended books for reading.

1. Jung, J.H., Gagne, J.P., Godden, A.L., Leeper, H.A., Moon, J.B. & Seewald, R.C. (1989). Genetic syndromes in communication disorders. Chapter I, Texas: Proed. Inc.
2. Ludlow, C.L. & Cooper, J.A. (1963). Genetic aspects of speech and language disorders. Chapter IV. New York: Academic Press.
3. Martin, A., Reord, A. &Styhens, D. (Eds) (1996). Genetics and hearing impairment. London: Whnes Publishers
4. Shprintzen, R.J. (1997). Genetics, syndromes and communication disorders. Chapter VII, London: Singular Publishing Group Inc.
5. Rankin, J. Helen M. Kingston: ABC of Clinical Genetics (3rd edn). Hum Genet **112**, 321 (2003).
6. Medical Genetics, Fifth Edition, Lynn B. Jorde, PhD Professor H.A. and Edna Benning Presidential Chair, Department of Human Genetics, University of Utah Health Sciences Center, Salt Lake City.
7. Nussbaum RL, McInnes RR, Willard HF, editors. Thompson & Thompson Genetics in Medicine. 7 th ed. Philadelphia: Saunders-Elsevier; 2007.
8. Rimoin DL, Pyeritz RE, Korf BR, editors. Emery and Rimoin's Essential Medical Genetics. 1st Indian ed. Oxford: Academic Press-Elsevier; 2013.
9. Ahluwalia KB. Genetics. 2nd ed. New Delhi: New Age International Publishers; 2009.
10. Scriver CR, Beaudet Al, Sly WS, Valle D, editors. The Metabolic and Molecular Bases of Inherited Diseases. 8 th ed. McGraw-Hill; 2001.

B 3.6: Clinicals in Speech-language Pathology

Hours 90+ **Marks 75: Credits 3**

General Considerations

a) Clinical work should be primarily linked to the theory courses of the semester.

b) After completion of clinical postings in Speech–language diagnostics, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) observe and document the results of assessment of speech fluency through standardized tests

b) Methods to examine the structures of the oral cavity/organs of speech.

c) record speech samples from persons with stuttering and identify stuttering instances and measure rate of speech

Know-how

a) Differentiate the speech characteristics between normal non-fluency and developmental stuttering by observing audio-video samples

b) To administer at least two standard tests for childhood language disorders.

c) Differentiate the speech characteristics between developmental, neurogenic, and

psychogenic stuttering by observing audio-video samples.

d) Differentiate the speech characteristics between developmental stuttering and cluttering by observing audio-video samples

e) Use software/ applications/ instruments used for assessment and management of individuals with fluency disorders.

Show

a) Demonstrate how to perform a detailed interview for individuals with fluency disorders.
b) Analyse and document the core and secondary features of stuttering, adaptation effect and individual and situational variations in individuals with stuttering
c) Analyse and document the speech characteristics of individuals with cluttering.
d) Demonstrate stress, intonation and variations in rate of speech and analyse perceptually variations in prosody in different recorded samples of typical individuals in different age and gender.
e) Record audio-visual speech samples of children and adults with and without fluency disorders and analyse and compare dysfluencies, secondary behaviours (if any), rate of speech, articulatory rate.
f) Diagnose cluttering using available screening/ diagnostic tool(s).
g) Administer, interpret, and diagnose stuttering using standardized test material in children and adults
h) Administer 9-point speech naturalness rating scale on individuals with and without stuttering.
i) Administer and interpret the results of quality-of-life questionnaire on individuals with fluency disorders
j) Record speech samples of individuals with and without fluency disorders and with delay in auditory feedback: analyse and compare the results.
k) Demonstrate therapy techniques used for management of fluency disorders in children and adults.

Do

a) Oral peripheral examination- minimum of three children

b) Evaluate children and adults with fluency disorders using protocol at your department/ institute and document the same.

c) Plan and take therapy for children and adult with fluency disorders.

d) Plan and take therapy for children with language disorder.

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B 3.7 Clinicals in Audiology

Hours 90+ **Marks 75 : Credits 3**

General Consideration

a. Clinical work should be primarily linked to the theory courses of the semester.
b. After completion of clinical postings in Audiology, the student will have the concept (Know), ability to apply (Knowhow), demonstrate in a clinical diary/logbook (Show), and perform (Do) the following on clinical population.

Know

a) Indications to administer special tests
b) Protocols for screening and diagnostic otoacoustic emissions and their interpretation
c) Characteristics of a good diagnostic and screening test
d) Role of various tests in the test battery

Knowhow

a) Administration of at least 1 test for adaptation, recruitment and functional hearing loss.
b) Administration of speech audiometry using various test material in open set and closed set mode
c) Knowledge to change protocol for OAE according to specific case

Show

a) Ability/knowledge to perform tests for identifying recruitment and adaptation
b) Skills to record and interpret OAE
c) Skills to counsel clients with functional hearing loss, cochlear and retrocochlear pathology based on test findings

Do

a) Tone decay test – 2 individuals with sensori-neural hearing loss
b) Administer tests for recruitment SISI, ABLB, MLB on 2 individuals with sensorineural hearing loss
c) Obtain PIPB function for 5 persons with normal hearing and 2 persons with hearing loss
d) Administer tests of functional hearing loss, Stenger test, Lombard test, Doerfler Stewart test on 2 individuals
e) Record OAEs (TEOAEs and DPOAEs) on 5 persons with normal hearing and 5 persons with hearing loss

Semester 4

B4.1 M: Structural Anomalies and Speech Sound Disorders

Hours 75 (45 + 30) **Marks 100 : Credits 4**

Objectives: After completing the course, the students would be able to

a. trace out normal speech sound development and classify speech sound disorders.
b. perform phonological analysis and assessment of speech sound disorders.
c. plan intervention for individuals with speech sound disorders.
d. identify the types of clefts, assess and manage speech sound errors and feeding difficulties in individuals with cleft lip and palate,
e. identify the structural disorders of the tongue, jaws and explain their associated problems after glossectomy and mandibulectomy, and
f. advise parents on feeding related issues in children with cleft lip and palate.

Unit 1: Speech Sound Development and its Disorders

a) Speech sound acquisition, Phonology & theories of phonological development
b) Fundamentals of articulatory phonetics – phonetic description of vowels and consonants, distinctive features, acoustic theory of speech production, acoustic characteristics of vowels and consonants, coarticulation
c) Speech sound disorders- terminologies, Incidence and Prevalence, causes, classification
d) Factors related to speech sound disorders – cognitive-linguistic, psychosocial, metalinguistic, oral stereognosis, and associated problems

Unit 2: Phonological Analysis and Assessment of speech sound disorders

a) Speech sound sampling and other procedures for phonological analysis, Transcription

b) OPME, analysis of speech sound errors,
c) Screening tools, diagnostic tests and assessment of speech intelligibility, speech sound discrimination, test battery
d) Determining need for intervention, prognosis and factors influencing target selection

Unit 3: Management of Speech Sound Disorders

a) Basic principles and stages in therapy- target selection, treatment continuum – establishment, maintenance, generalization and stabilization
b) Therapy approaches- Traditional, Motor based and cognitive linguistic based therapy approaches – evidence-based approaches and models
c) Use of technology for SSD intervention
d) Adapting approaches to individuals from culturally and linguistically diverse backgrounds, Role of family in intervention

Unit 4: Speech Characteristics, Assessment and Management of Cleft Lip and Palate Speech

a) Types, characteristics and classification of cleft lip and palate, Causes of cleft lip and palate: genetic, syndrome and others
b) Velopharyngeal inadequacy: types, causes and classification, associated problems in persons with cleft lip and palate: speech, language, feeding, dental and occlusion, hearing, psychological
c) Team approach, Assessment of cleft speech, subjective assessment, speech intelligibility, Objective assessment of resonance and articulatory features and reporting test results using Universal Parameters
d) Management of cleft lip and palate: Surgical and prosthetic management, Techniques and strategies to correct speech sound disorders, Techniques and strategies to improve feeding, counselling and guidance

Unit 5: Structural Anomalies of Tongue and Mandible - Characteristics, Assessment and Management

a) Types, classification and characteristics of structural anomalies of tongue and mandible, causes for structural anomalies of tongue and mandible
b) Associated problems in persons with structural anomalies of tongue and mandible: Speech, Feeding, Dental and occlusion Psychological and others
c) Team of professionals in assessment and management of persons with structural anomalies of tongue and mandible and their roles.
d) Management of persons with structural anomalies of tongue and mandible: Surgical and prosthetic management, Techniques and strategies to improve speech intelligibility, Techniques and strategies to improve feeding, counselling and guidance

Recommended Reading

1. Bauman-Waengler, J. (2016). Articulation and phonology in speech sound disorders (5thed.). Ocean View School District, Oxnard, California.
2. Bauman-Wängler, J. A., & Garcia, D. (2020). Phonological treatment of speech sound disorders in children: A practical guide. Plural Publishing.Berkowitz. S. (2001). Cleft Lip and Palate: Perspectives in Management. Vol II. Singular Publishing Group. Inc.
3. Bowen, C. (2014). Children's speech sound disorders (2nded.). Wiley-Blackwell.
4. Ginette, P. (2014). Speech Therapy in Cleft Palate and Velopharyngeal Dysfunction. Guildford, J & R Press Ltd.
5. Jaso Noemi., & Ana Maria D Cruz, (2013) . Cleft lip and Palate :Etilogy, Surgery and Repair and Sociological Consequences , Nova Science Publisher , Inc
6. Kahn, A. (2000). Craniofacial Anomalies: A Beginner's Guide For Speech Language Pathologists. Singular Publishing Group. California.

7. Karlind, M. & Leslie, G. (2009). Cleft Lip and Palate: Interdisciplinary Issues and Treatment. Texas, Pro Ed.
8. Kummer, A.W. (2014). Cleft Palate and Craniofacial Anomalies: The Effects on Speech and Resonance. Delmar, Cengage Learning.
9. McLeod, S., & Baker, E. (2017). Children's speech: An evidence-based approach to assessment and intervention.
10. Phippen Ginette (2014). Speech Therapy In Cleft Palate and Velopharyngeal Dysfunction, J & R Press Ltd.
11. Rvachew, S., & Brosseau-Lapré, F. (2016). Developmental phonological disorders: Foundations of clinical practice (2nded.). Plural Publishing

Practicum

a) Identify the stages of speech sound acquisition by observations from videos of children from birth to 5 years of age.
b) List the vowels and consonants in your primary language and provide phonetic and acoustic descriptions for the speech sounds.
c) Identify the vowels and consonants of your language on the IPA chart and practice the IPA symbols by transcribing words and running speech.
d) Record the speech of one typically developing child from 1-8 years of age (include single word and connected speech samples), transcribe the sample, and perform phonological assessment.
e) Collect 03 A/V samples of speech sound disorders, and analyse the errors
f) Make a list of minimal pairs in English and in any other language (mother tongue)
g) Practice instructions for phonetic placement of selected sounds.
h) Develop a home plan with activities for any one speech sound error/phonological error using the therapy techniques.
i) Collect therapy samples (pre-post) of speech sound disorder and analyse them
j) Identify the different types of cleft lip and palate by looking at illustrations and images and represent the types using striped “Y” classification

k) Listen to 10 speech samples of children with cleft lip and palate and rate their nasality/ speech (articulation and cleft type errors) based on universal reporting parameters.

l) Identify the type of closure of velopharyngeal port for 5 normal individuals and 5 individuals with cleft lip and palate using videos of nasoendoscopy/ videofluroscopy.

m) Perform oral peripheral mechanism examination on 10 individuals (5 adults and 5 children) and document the structure and functions of the articulators.

n) Analyse the different types of occlusions in 10 individuals,

o) Identify the type of glossectomy by looking at pictures/illustrations. Identify the different types of prosthesis in the management of mandibulectomy.

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B4.2 M : Diagnostic Audiology - Advanced

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. explain the concept of immittance and its clinical implications
b. perform immittance evaluation,
c. describe the various auditory evoked potentials and record them,
d. explain central auditory processing and conduct tests to assess the same,
e. assess tinnitus and hyperacusis, and
f. carry out screening for vestibular disorders

Unit 1: Immittance Evaluation

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

Unit 2: Auditory Evoked Potentials (AEPs): Auditory Brainstem

a) Introduction and classification of AEPs
b) Instrumentation and principles of AEP recording techniques
c) Auditory brainstem response generators
d) Protocol and procedure of recording auditory brainstem response
e) Factors affecting auditory brainstem responses
f) Clinical applications of ABR

Unit 3: Overview of other AEPs and their Clinical Applications

a) Electrocochleography (ECochG)
b) Auditory Middle Latency Responses (AMLR)
c) Auditory Long Latency Responses (Obligatory responses)
d) Other long latency potentials such as P300, MMN, P600, N400, T-complex, CNV)
e) Auditory Steady State Responses (ASSR)
f) Brainstem responses to speech and other complex signals

Unit 4: Assessment of Central Auditory Processing Disorder (CAPD)

a) Definition of (CAPD, processes involved in auditory processing.
b) Behavioural and clinical indicators of central auditory processing disorders
c) Principles and rationale of test to identify central auditory processing disorders (concept of redundancy, bottleneck and subtlety principles
d) Monaural low redundancy tests, Dichotic speech tests, Binaural interaction tests, Tests of Temporal processing, testing of binaural integration and binaural separation
e) Interpretation of tests used for assessment of CAPD (site of lesion, processes involved), Team involved in assessment and management of CAPD

Unit 5: Test to Diagnose other Disorders: Tinnitus, Hyperacusis and Vestibular disorders

a) Overview on other systems involved in balance, Vestibular ocular reflex and vestibulo spinal reflex
b) Signs and Symptoms of vestibular disorders, Team in the assessment and management of vestibular disorders
c) Screening for vestibular disorders
d) Overview of tests used for assessment of tinnitus - Pitch matching, loudness matching, residual inhibition, Feldman masking curves
e) Assessment of hyperacusis and related disorders– questionnaires, Johnson Hyperacusis Dynamic Range Quotient

Recommended Reading

1. Bellis, T.J. (2011). Assessment and Management of Central Auditory Processing Disorders in the Educational Setting: From Science to Practice. (2nd edition). Plural Publishing, Inc.
2. Beukes, E.W., Andersson, G., Manchaiah, V., &Kaldo, V. (2021). Cognitive Behavioural Therapy for Tinnitus. Plural Publishing, Inc.
3. Deshpande, A.K., & Hall, J.W. (2022). Tinnitus: Advances in Prevention, Assessment, and Management. Plural Publishing, Inc.
4. Durrant, J. D., Fowler, C. G., Ferraro, J. A., & Purdy, S. C. (2022). Basic Concepts of Clinical Electrophysiology in Audiology. Plural Publishing Inc.
5. Hatzopoulos, S., Ciorba, A., & Krumm, M. (2020). Advances in audiology and hearing science. Apple Academic Press.
6. Honaker, J.A. (2020). Diagnostic Vestibular Pocket Guide: Evaluation of Dizziness, Vertigo, and Imbalance. Plural Publishing Inc.

7. Katz, J., Chasin, M., English, K., Hood, L.J & Tillery, K.L. (2019). Handbook of Clinical Audiology. (7th edition). Wolters Kluwer.
8. Kimball, S.H., &Fagelson, M. (2022). Tinnitus and Sound Sensitivity Casebook. Thieme.
9. Musiek, F.E. & Chermak, G.D. (2014). Handbook of Central Auditory Processing Disorder, Volume I: Auditory Neuroscience and Diagnosis. (2nd edition). Plural Publishing, Inc.
10. Rawool, V. (2015). Auditory Processing Deficits: Assessment and Intervention. Thieme.
11. Stach, B.A., & Ramchandran, V. (2021). Clinical Audiology: An Introduction. (3rd edition). Plural Publishing, Inc.
12. Tyler, R., & Perreau, A. (2022). Tinnitus Treatment: Clinical Protocols. (2nd edition). Thieme.

Practicum

a) Measure admittance in the calibration cavities of various volumes and note down the observations
b) Calculate Equivalent ear canal volume by measuring static admittance in an uncompensated tympanogram (10 ears)
c) Do tympanogram in the manual mode and measure peak pressure, peak admittance and ear canal volume manually using cursor (10 ears).
d) Measure gradient of the tympanogram (10 ears)
e) Administer Valsalva and Toynbee and William‟s pressure swallow test(5 ears)
f) Record acoustic reflex thresholds in the ipsi and contra modes, (10 ears)
g) Plot Jerger box pattern for various hypothetical conditions that affect acoustic reflexes and interpret the pattern and the corresponding condition.
h) Carry out Acoustic reflex decay test on 5 individuals
i) Trace threshold of ABR (in 5 dB nHL steps near the threshold) for clicks and tone bursts of different frequencies (2 persons) and draw latency intensity function.

j) Record ABR using single versus dual channels and, note down the differences.

k) Record ABR at different repetition rates in 10/sec step beginning with 10.1/11.1 per second. Latency-repetition rate function needs to be drawn.

l) Record with each of three transducers (HP, insert phones and bone vibrator) and polarities and draw a comparative table of the same. Students should also record with different transducers without changing in the protocol in the instrument and calculate the correction factor required.

m) Record ASSR for stimuli of different frequencies and estimate the thresholds

n) Administer CAPD test battery to assess different processes on 3 individuals and note down the scores

o) Administer Fukuda stepping test, Tandem gait test, Finger nose pointing, Romberg test, Sharpened Romberg test, Dix-Hallpike test, Log-roll test on 5 of the individuals each and note down the observations.

p) Estimate the pitch and loudness of tinnitus in 2 persons with tinnitus (under supervision). Assess the residual inhibition in them.

q) Plot Feldman masking curves for a hypothetical case

r) Administer Johnson Hyperacusis Dynamic Range Quotient on any 2 of the individuals and note down the scores.

s) Administer tinnitus handicap inventory on 2 patients.

B4.3 MC: Neurology

Hours 45 **Marks 75 : Credits 3**

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

a. the basic concepts, functional anatomy and physiology of nervous system related to speech and hearing
b. neural organization – different structures and functions of various systems
c. neurosensory and neuromotor controls in speech, language and hearing mechanisms
d. cerebral plasticity and dominance and its relevance for speech, language and hearing disorders
e. various neural diseases, lesions, nutritional and metabolic conditions affecting speech, language and hearing
f. basic principles and assessment procedures used in speech, language and hearing disorders associated with neurological conditions, and
g. basic principles and management procedures used in speech, language and hearing disorders associated with neurological conditions

Unit 1: Functional Anatomy of the Nervous System

a) General introduction to basic neurological concepts
b) Organization of the neural system
c) Central, peripheral and autonomic neural system
d) Neural structures – applied anatomy and physiology
e) Cranial nerves and those important for speech, language, hearing and balance
f) Cerebral blood supply, nourishment and protection of the brain
g) General principles of neural organization
h) Transmission of information in neural system – nerve fibers, synaptic transmission, action potential, chemical transmission, excitatory and inhibitory potential & neuromuscular transmission

i) Cerebral plasticity and development of neural plasticity and cerebral dominance

Unit 2: Neurophysiology of Speech and Hearing Processes

a) Neurosensory organization of speech and hearing
b) Central auditory nervous system
c) Anatomy of oral sensation and oral sensory receptors
d) Neuromotor control of speech
e) The pyramidal, extra-pyramidal system, basal ganglia and cerebellar system
f) Lower and upper motor neuron, Alpha and gamma motor neurons
g) Sensory and motor examination, oral, peripheral and other reflexes
h) Swallowing mechanism and neural control
i) Screening and bedside neurological examination

Unit 3: Neural Disorders Associated with speech and hearing disorders - I

a) Neural infections – meningitis, encephalitis
b) Developmental anomalies – spinal cord defects, syringomalacia and bulbia, Arnold Chiari malformations
c) Hydrocephalus – source and circulation of CSF, types and etiopathogenesis
d) UMN lesions –spastic dysarthria
e) LMN lesions –flaccid dysarthria
f) Mixed lesions
g) Extra pyramidal lesions – dyskinetic dysarthria
h) Cerebellum and cerebellar pathway lesions – ataxic dysarthria
i) Other diverse lesions and dysarthria

Unit 4: Neural Disorders Associated with Speech And Hearing Disorders - II

a) Cerebrovascular diseases – ischemic brain damage – hypoxic ischemic encephalopathy, cerebral infarction – intracranial hemorrhage – intracranial, subarachnoid
b) Trauma to the CNS – subdural hematoma, epidural hematoma, parenchymal brain damages
c) Demyelinating diseases – multiple sclerosis, perivenous encephalomyelitis, Dementia
d) Degenerative, metabolic and nutritional disorders – Alzheimer's disease, Parkinsonism
e) Metabolic, hereditary, acquired, neuronal storage disorders
f) Wilson's disease, Phenylketonuria
g) Nutritional – Wernicke's encephalopathy, pellagra
h) Alcoholic cerebellar degeneration
i) Clinical-pathological methods and Neuro-imaging
j) Tumours of the CNS – gliomas, embryonal tumours of meninges, metastasis, malignant tumours

Unit 5: Speech-language and Swallowing Disorders

a) Central language mechanism and its disorders
b) Developmental motor speech disorders – cerebral palsy, muscular dystrophy
c) Neurologic disorders with primitive reflexes, diagnosis and management
d) Clinical neurological syndromes associated with speech and language disorders
e) Childhood language disorders associated with neurologic disorders
f) Dysphagia in neurogenic disorders and assessment of mastication and deglutition
g) Agnosia and other conditions associated with speech and hearing disorders
h) Cognitive disorders associated with neurologic disorders

i) General management principles and options for childhood neurogenic speech, language and hearing disorders

j) General management principles and options for adult neurogenic speech, language and hearing disorders

Recommended Reading

1. Andreatta, Richard D., (2020). Neuroscience fundamentals for communication sciences and disorders. San Diego, CA: Plural Publishing,
2. Bhatnagar, S.C. (2012). Neuroscience for the Study of Communicative Disorders. Lippincott, Williams & Wilkins
3. Blake, Margaret Lehman, Hoepner, Jerry K., (2023). Clinical neuroscience for communication disorders: Neuroanatomy and neurophysiology. San Diego, CA: Plural Publishing, Inc.
4. Duffy, J. R. (2020). Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (4th Ed.). University of Michigan, Elsevier Mosby.
5. Leonard L. LaPointe, (2019). Atlas of Neuroanatomy for Communication Science and Disorders. Thieme Publishers New York.
6. Robert H. Brookshire; Malcolm R. McNeil, (2014). Introduction to Neurogenic Communication Disorders. Elsevier Mosby.
7. Ryan Splittgerber, (2019) Snell's Clinical Neuroanatomy (8th Ed.). Wolters Kluwer.
8. Seikel, John A., Konstantopoulos, Kostas, Drumright, David G., (2020). Neuro anatomy and Neurophysiology for Speech and Hearing Sciences. Plural Publishing, Inc.
9. Webb, W. G., (2017). Neurology for the speech-language pathologist (6th ed.). St. Louis, Missouri: Elsevier Inc

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B4.4 MC: Research Methods and Statistics

Hours 45 **Marks 75: Credits 3**

Objectives: After completing this course, the student will

a. be able to understand the nature and importance of research in the field of audiology and speech-language pathology
b. be exposed to the basics of design and execution of research,
c. learn the basic statistical tools, and
d. understand the ethical guidelines for conducting research on humans

Unit 1: Introduction to Research Methods

a) Meaning and purpose of research: meaning
b) Need for research in audiology and speech-language pathology
c) Funds/grants for research
d) Steps in research: identification, selection
e) Formulation of research questions: aims, objectives, statement of problem, hypothesis
f) Types of variables; types of sampling procedures (random and non-random);
g) Types/ methods of data collection and their advantages and disadvantages
h) Reliability and validity (internal and external validity)

Unit 2: Research Design in Audiology and Speech-language Pathology

a) Types of research: survey, ex-post facto research, normative research, standard-group comparison

b) Experimental and quasi experimental research: group design & single subject design
c) Internal and external validity of research
d) Between groups vs. repeated measures design
e) Documentation of research: scientific report writing, different formats or styles (APA, AMA and MLA),
f) Ethics of research

Unit 3: Introduction to Statistics and Data Collection

a) Application of statistics in the field of audiology and speech-language pathology.
b) Scales of measurement: nominal, ordinal, interval, ratio
c) Classification of data: class intervals, continuous and discrete measurement
d) Normal distribution: general properties of normal distribution, theory of probability,
e) Variants from the normal distribution: skewness and kurtosis
f) Measure of central tendency: mean, median, mode
g) Measures of variability: range, deviation (average and standard deviation), variance

Unit 4: Statistics and Research Designs

a) Choosing statistics for different research designs
b) Correlational techniques: Pearson's Product Moment Correlation Coefficient; Spearman's Rank order correlation coefficient
c) Statistical inference: concept of standard error and its use; the significance of statistical measures; testing the significance of difference between two means z-test, t-test; analysis of variance, post hoc tests,
d) Non-parametric tests: Chi-square test, Wilcoxon test, Mann-Whitney U test,
e) Reliability and validity of test scores: reliability and validity, Item analysis
f) Analysis of qualitative data
g) Software for statistical analysis

Unit 5: Epidemiology

a) Basic epidemiologic concepts and principles
b) Epidemiologic data sources and measurements
c) Epidemiologic methods – questionnaire survey, screening, personal survey, testing
d) Media - their advantages and disadvantages
e) Incidence and prevalence of hearing, speech, language disorders as per different census (NSSO, WHO)

Recommended reading

1. Dane F. C. (2011). Sampling and Measurement. In Evaluating research: Methodology for people who need to read research. New Delhi: SAGE publication.
2. David L. Irwin, Norman J. Lass, Mary Pannbacker, Mary Ellen Tekieli Koay, Jennifer S. Whited (2020). Clinical research methods in speech-language pathology and audiology (3rd Edition), San Diego, CA : Plural Publishing.
3. Field, A. Discovering Statistics Using IBM SPSS (4th ed.). SAGE Publications.
4. Hegde M. N. (2024). A course book on Scientific and professional writing for speech language pathology (6th Edition), San Diego, CA: Plural Publishing, Inc.
5. Hegde, M. N. (2021). Clinical research in communicative disorders: Principles and strategies. (4th Edition), San Diego, CA: Plural Publishing.
6. Hesse-Biber, S. N. & Leavy, P. (2011). The Ethics of social research. In the Practice of qualitative research. (2nd Edition), New Delhi: SAGE publication.
7. Lauren K. Nelson, Jaimie L. Gilbert (2021). Research in Communication Sciences and Disorders: Methods for Systematic Inquiry. (4th Edition), San Diego, CA: Plural Publishing.
8. Meline, T. (2010). A research primer for communication sciences and disorders. Singapore: Pearson publication.

9. Robert H. Brookshire, Shelley B. Brundage (2016). Writing Scientific Research in Communication Sciences and Disorders, (3rd Edition), San Diego, CA : Plural Publishing.
10. Vinaya Manchaiah, Eldré W. Beukes, Ross J. Roeser (2022). Evaluating and Conducting Research in Audiology. San Diego, CA : Plural Publishing.

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4.5 MO: Basics of Sign Language

Hours 15 **Marks 50 : Credits 1**

Objectives:: After completing the course, the student should be able to:

- Understand Sign Language as a Complete Language
- Discuss the two manual options with reference to Indian special schools
- Describe manual options in the light of issues like language, culture and identity
- Describe the finger spelling and basic vocabulary of Indian sign language
- Explain the phonology, morpho-syntax of Indian sign language
- Discuss the relevant issues like literacy, training with reference to manual options

Unit 1: Understanding Indian Sign Language

a) Sign Language as a Complete Language: Concept, characteristics, and common misunderstandings about sign language.

b) The history of ISL: Its origin, development and relationship with other signed (Indian Signing Systems and other dialectal variations) and spoken languages

c) Myths and facts about ISL and ISS

d) Basic Awareness of Paradigms of D/Deafness; Communicative challenges / concerns; Deafness with reference to culture, language, identity, minority status, deaf gain, literacy and inclusion

e) Various Educational options for deaf in India: Oralism, Total communication and educational bilingualism: Current Scenario, Challenges, Pre-requisites and fulfilling prerequisites

f) Deaf communities and sign languages in other countries, in comparison to ISL

Unit 2: Indian Sign language and its linguistic structures

a) Fingerspelling of ISL

b) Signing basic vocabulary in ISL

c) Phonology of ISL: Handshapes, Orientation, Location, Movements and Non-Manual

d) Morpho-Syntactic Structures of ISL: Word order, negation, Pronouns, Plurals, Tenses, Questions

e) Expression of Supragements and Emotions in ISL

f) Grammatical differences between Spoken and Indian Sign Language.

Unit 3: ISL in Daily Communication and Skill Development Challenges

a) Need for 'Motherese' (tuning language to suit young children) and age-appropriate discourse with children with appropriate language,

b) Developmental Milestones in manual communication (ISL)

c) Status of ISL in India

d) Role of Deaf Interpreter and Hearing Interpreter

e) Challenges in implementing ISL in daily communication

f) Legislative Provisions for ISL in India

Unit 4: Method of Teaching, Evaluation and Guidance of Manual Communication in India

a) Developing literacy among Deaf with reference to manual options

b) Methods in teaching manual communication (ISS and ISL) for different age groups

c) Supporting Manpower for Deaf individuals in mainstream schools

d) Monitoring and measuring development of ISL/ ISS in students: Receptive and expressive mode

e) Training and guidance for families/teachers for tuning home and mainstream school environments: Current scenario and strategies

f) Measures to be taken to while using manual form of communication in one-to-one conversation and in groups: Do's and Dont's

g) Sign language in social and other media

Practicum

a) Watch the videos and identify at least 50 basic signs in ISL

b) Able to sign at least 50 basic signs in ISL

c) Use ISL grammar on 5 cases as an augmentation to speech-language therapy

d) Learn how to sign 5 English rhymes in English and use it for therapy purposes

References

- RCI (2011). Communication Options and Students with Deafness.
- AYJNIHH. R. K. Singh Workbook. 'A' level Introductory Course in Indian Sign Langauge
- AYJNIHH. Professional Interpreter Course in Indian Sign Langauge Level C Workbook
- Vasishta, M., Woodward, J., &Desantu, S. (1980). An Introduction to Indian Sign Language. New Delhi: All India Federation of the Deaf.

- Vasishta, M., Woodward, J., &Desantu, S. (1980). An Introduction to Indian Sign Language. Kolkata: All India Federation of the Deaf.
- Vasishta, M., Woodward, J., &Desantu, S. (1980). An Introduction to Indian Sign Language. Mumbai: All India Federation of the Deaf.
- Mani, M.N.G., Gopalkrishnan, V., & Amaresh, G. (2001). Indian Sign Language Dictionary. Germany, CBM International.
- https://www.islrtc.nic.in/
- https://www.nios.ac.in/online-course-material/secondary-courses/indian-sign-language-(230).aspx
- Adam, et.al. (2014) Deaf Interpreter at Work (International Insights). Gallaudet University, 1st Edition.
- https://digitalcommons.unf.edu/cgi/viewcontent.cgi?article=1009&context=joi

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B4.6 M : Clinicals in Speech-language Pathology

Hours 90+ **Marks 100 : Credits 3**

General Considerations

a. Clinical work should be primarily linked to the theory courses of the semester.
b. After completion of clinical postings in Speech–language diagnostics, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) Document the age of acquisition of speech sounds and phonological awareness skills in different languages.
b) Document the patterns of phonological processes in various languages.
c) Prepare a list of feeding postures and feeding appliances (illustrations and images) used for infants with cleft lip and palate.
d) Prepare a list (with images) of various types of prosthesis used in the management of cleft of lip and palate.
e) Document the government programs available for rehabilitation of children with cleft lip and palate.

Know-how

a) Administer and interpret deep test of articulation in different languages.
b) Use software/ instruments used for assessment and management of speech sound disorders and structural anomalies.

c) Differentially diagnose the speech characteristics of articulation disorder and phonological disorder.
d) Differentially diagnose the speech of children with hearing impairment, cleft lip and palate, developmental apraxia of speech and developmental dysarthria.
e) Differences in the speech characteristics of children with cleft of lip, cleft of palate, cleft of lip and palate and submucous cleft.
f) Identify various compensatory and obligatory errors in recorded samples of individuals with cleft lip and palate.
g) Identify the type of closure of velopharyngeal port for individuals with and without cleft lip and palate from videos of nasoendoscopy/ videofluroscopy.
h) Identify the type of glossectomy from images.

Show

a) Demonstrate how to perform a detailed interview for individuals with speech sound disorders.
b) Demonstrate how to perform a detailed interview for individuals with structural anomalies.
c) Demonstrate the procedure for oral peripheral mechanism examination. Compare the differences in typical children and children with speech sound disorders.
d) Perform independent analysis (consonant- vowel inventory, syllable word shapes inventory, and syllable stress patterns inventory) of speech samples of typically developing children of different ages (2-6 years).
e) Perform relational analysis of speech samples of typically developing children of different ages (2-6 years).
f) Administer and interpret the results of articulation test on children with speech sound disorders.
g) Record a speech sample of typically developing children in the age group- birth to 1 year, 1-2 years, 2-3 years, 3-4 years and 5 years and document the speech sound errors and phonological processes present in them.

h) Assess oral mechanism, speech sound errors and speech intelligibility in children with speech sound errors and cleft lip and palate.
i) Demonstrate phonetic placement for management of speech sound disorders.
j) Demonstrate techniques for management of phonological disorders.
k) Examine the oral structures of individuals with cleft lip and palate and document the structures using Modified Y-strip classification.
l) Rate nasality, speech intelligibility, and document the articulatory errors from speech samples of individuals with cleft lip and palate.
m) Use universal parameters to assess and document the speech characteristics of individuals with cleft lip and palate.
n) Determine the acoustic characteristics of consonants and vowels using PRAAT and compare the differences in these features across these speech sounds.

Do

a) Record and transcribe speech samples of children with speech sound disorders and analyse the speech characteristics.
b) Prepare an oromotor kit for oral peripheral mechanism examination.
c) Evaluate children and adults with child language disorders using protocol at your department/ institute and document the same.
d) Plan and provide speech therapy for children with speech sound disorders.
e) Plan and provide speech therapy for children with cleft of lip and palate.

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B4.7 M : Clinicals in Audiology

Hours 90+ **Marks 100 : Credits 3**

General Considerations

a. Clinical work should be primarily linked to the theory courses of the semester.
b. After completion of clinical postings in Audiology, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) Types of hearing aids
b) Procedures/protocol to assess listening needs
c) National and international standards on electroacoustic characteristics of hearing aids

Knowhow

a) Skills to program digital hearing aids
b) Counsel hearing aid user regarding the use and maintenance hearing aids
c) Skills to troubleshoot hearing aids
d) Skills to select different types of ear molds depending on the type of hearing aid, client, degree, type, and configuration of hearing loss

Show

a) Electroacoustic measurement as per BIS standard on at least 2 hearing aids

b) How to process 2 hard and 2 soft molds
c) How to preselect hearing aid depending on listening needs and audiological findings on at least 5 clinical situations (case files)
d) How select test battery depending on case history and basic audiological information

Do

a) Trouble shooting and fine tuning of hearing aids on at least 5 older adults
b) Counsel 3 hearing aid users/care takers regarding use, care and maintenance of hearing aids
c) Programming of hearing aid on at least 5 clients
d) Make Earmolds for at least 3 clients
e) Assess benefit from hearing aids/assistive listening devices for 5 clients

Semester 5

B5.1 M: Fluency and its Disorders

Hours 75 (45 + 30) **Marks 100: Credits 4**

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

a. identify the normal aspects of fluency, its variability, and factors influencing its development,
b. describe the terminologies, classification and characteristics of stuttering and other fluency disorders,
c. assess fluency and dysfluency, and differentiate different variations of fluency disorders (stuttering, neurogenic stuttering, cluttering),
d. plan and serve management strategies for persons with fluency disorders,
e. plan strategies and aspects to prevent development and relapse of stuttering, and
f. counsel persons affected as well as their family members.

Unit 1: Fluency

a) Definition of fluency and dimensions of fluency
b) Factors influencing fluency of speech
c) Definition and characteristics of suprasegmentals in speech
d) Development of fluency and its components
e) Variables affecting development of fluency
f) Typical disfluency, characteristics

Unit 2: Stuttering and Other Fluency Disorders

a) Developmental stuttering – Definition, core and secondary characteristics, attitudes and anxiety issues in adults and children who stutter:
    a. Development of stuttering: from onset to adulthood (Bloodstein's phases, VanRiper's tracks, Conture's classification, Guitar's classification
b) Nature of stuttering- prevalence and incidence, gender ratio, variability, recovery, fluency inducing conditions, adaptation effect, multilingual issues
c) Cause(s) of stuttering – introduction to theories of stuttering
    a. Learning and Psychological theories: Diagnosogenic theory, Classical and operant conditioning, Personal Construct Theory, Anticipatory Struggle Hypothesis, Breakdown Hypothesis, Repressed Need Hypothesis
    b. Organic Theories: Cerebral dominance, Genetic basis of Stuttering
    c. Speech Motor Control Theories: Zimmerman's Model, Cyber kinetic or servo system Model, Interhemispheric inference Model, The variability Model, DIVA and GODIVA Model
    d. Psycholinguistic Theories: Covert Repair hypothesis, EXPLAN theory, Fault-line Hypothesis
    e. Multifactorial Models: Demands–capacities model, Neurophysiological Model, CALMS Model, Communication–Emotional model, Dual-diathesis stressor Model
d) Acquired stuttering (neurogenic stuttering, psychogenic stuttering), Cluttering

Unit 3: Assessment and Differential Diagnosis of Fluency Disorders

a) Case History for Preschool, School-age, adolescents, and adults
    a. Speech sample recording
    b. Speech sample transcription
b) Assessment of core and secondary behaviours
    a. Tools for quantification of core and secondary behaviours
    b. Assessment of Speech naturalness

c. Assessment of feelings and attitudes accompanying stuttering
d. Assessment of the impact of stuttering

c) Closing interview
d) Differential diagnosis of fluency disorders (stuttering, cluttering, neurogenic stuttering and typical dysfluency)
e) Mobile applications related to assessment of stuttering

Unit 4: Management of stuttering

a) Counselling, Prevention and early identification of stuttering
b) Management of stuttering – approaches and rationale
c) Management of Children with stuttering: preschool and school-age children (Direct vs. Indirect Approaches
    a. Indirect approaches (Parent-child interaction Therapy)
    b. Direct Approaches (LIDCOMBE Program, Westmead Program, Response Cost, RESTART-DCM
    c. Evidence in Indian context
    d. Analogies
d) Management of Adults with stuttering: Treatment goals
    a. Fluency shaping vs stuttering modification approaches
    b. Fluency shaping
    c. Prolonged Speech
    d. Shadowing
    e. Habit rehearsal Techniques
    f. Light Articulatory Contact
    g. Flow and Slow Method / Modified airflow Technique
    h. Comprehensive Stuttering Program
    i. Camperdown Program
    j. Successful Stuttering Management Program
    k. Cognitive Behaviour Therapy

l. Group therapy
m. Measurement of therapy progress and naturalness rating

e) Issues of speech naturalness in stuttering
f) Relapse and recovery from stuttering
g) Instrumental approaches for the management of stuttering: DAF, mobile applications related to management of stuttering

Unit 5: Management of Fluency-related Entities

a) Management of stuttering - its rationale, techniques and strategies in
    a. Children with stuttering
    b. Adults with stuttering
    c. Neurogenic stuttering
    d. Cluttering
    b) Relapse and recovery in neurogenic stuttering and cluttering
    c) Counselling,
    d) Prevention and early identification of stuttering and cluttering

Recommended Reading

1. Bloodstein, O., Ratner, N. B. & Brundage, S. B. (2021). A Handbook on Stuttering (7th Ed.). USA: Plural Publishing Inc.
2. Guitar, B. (2024). Stuttering-An Integrated Approach to its Nature and Treatment. (6th Ed.). Baltimore, Lippincott Williams & Wilkins.
3. Hegde, M. N. (2007). Treatment Protocols for Stuttering. CA Plural Publishing.
4. Howell, P. (2011). Recovery from Stuttering. New York, Psychology Press.
5. Logan, K. J. (2022). Fluency disorders: Stuttering, cluttering, and related fluency problems (2nd Ed.). CA. Plural Publishing.
6. Logan K.J. (2015). Fluency disorders. San Deigo: Plural publishing.

7. Maruthy, S., & Kelkar, P. (Eds.). (2023). Understanding and Managing Fluency Disorders: From Theory to Practice. Taylor & Francis.
8. Rentschler, G. J. (2012). Here`s How to Do: Stuttering Therapy. San Diego, Plural Publishing.
9. Yairi, E., & Seery, C. H. (2015). Stuttering - Foundations and Clinical Applications. (2nd Ed). USA, Pearson Education, Inc.

Practicum

a) Assess the dimensions of fluency and rate of speech in 5 normal adults.
b) Record and analyse suprasegmental features in typically developing children between 2 and 5 years.
c) Record audio visual sample of 5 typically developing children for fluency analysis.
d) Record audio visual sample of 5 typical adults for fluency analysis.
e) Listen/see samples of normal non fluency and stuttering in children and document the differences.
f) Identify the types of dysfluencies/secondary behaviours in the recorded samples of adults with stuttering.
g) Administer SPI on 3 typically developing & 2 children with stuttering.
h) Administer CALMS rating scale on 3 typically developing & 2 children with stuttering.
i) Administer SSI 5 typically developing children.
j) Administer SSI on 5 adults with normal fluency.
k) Administer OASES – S on 5 children.
l) Administer OASES – A on 5 adults with normal fluency.
m) Administer naturalness rating scale on 5 adults with normal fluency and 3 recorded samples of stuttering
n) Instruct and demonstrate the following techniques: Airflow, prolongation, easy onset and shadowing techniques.
o) Record 5 speech samples with various delays in auditory feedback and analyse the differences.

B5.2 M: Motor Speech Disorders in Children

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. identify neuro-developmental processes in speech production
b. explain the terminologies, classification and characteristics of cerebral palsy and other motor speech disorders in children
c. assess motor speech disorders in children, and differentiate it from other associated / related disorders,
d. plan management for the affected paediatric clinical population with dysarthria and apraxia of speech, and
e. plan strategies to assess and manage feeding and swallowing problems in children

Unit 1: Neuro-developmental processes in speech production and introduction to motor speech disorders

a) ` a) Development of neural pathways of speech motor control (brain maturation, reflexes, sensory and motor)
b) Sensory-motor integration of speech production (Spatial-temporal planning, motor planning, and feedback)
c) Dysarthria in children: Definition, etiology, characteristics, and associated problems
    a. Cerebral palsy: Spastic, Flaccid, Hyperkinetic, Hypokinetic, and Ataxia
    b. Lower motor neuron and other syndromes associated with motor speech disorders
d) Childhood apraxia: Definition, etiology, types, and characteristics.
    a. Childhood apraxia of speech
    b. Nonverbal oral apraxia

Unit 2: Assessment of motor speech disorders in children

a) Case history, developmental neurological evaluation – primitive postural and oro-pharyngeal reflexes, cranial nerve examination, and oral peripheral mechanism examination,
b) Behavioural assessment– Tasks, observations, and measures of speech sub-systems (Respiration, phonation, articulation, speech intelligibility, comprehensibility, fluency, and prosody)
c) Cognitive-linguistic assessment, assessment of language and speech skills with specific reference to Phonetic and phonemic inventory, phonotactics and syllable sequencing, variability of errors, speech intelligibility, and prosody. Formal protocols/checklists, screening tests/ protocols specific to Indian languages for childhood apraxia of speech
d) Differential diagnosis- childhood dysarthria, childhood apraxia of speech, and other developmental disorders

Unit 3: Management of childhood dysarthria

a) Team approach in rehabilitation of motor speech disorders in children
b) Behavioural management of speech subsystem- respiratory, phonatory, resonatory, and articulatory subsystems
c) Prosthetic management in the treatment of childhood dysarthria
d) AAC in the management of childhood dysarthria
e) Case studies: Planning intervention for children with dysarthria including language intervention

Unit 4: Management of childhood apraxia of Speech

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

Unit 5: Feeding and swallowing disorders in children

a) Phases of swallowing, neural control of swallowing, and reflexes related to swallowing
b) Causes, signs, and symptoms of dysphagia in children
c) Feeding and swallowing assessment –neural developmental assessment, cranial nerve examination, oral peripheral mechanism examination, clinical swallow examination, nutritive and non-nutritive assessment, and instrumental assessment.
d) Feeding and swallowing treatment – positioning, oral-motor treatment, team approach, non-oral feeding, transitional feeding, and modifications in feeding.

Recommended Reading

1. Arvedson, J. C., Lefton-Greif, M. A. (2017). Pediatric Swallowing and Feeding: Assessment and Management, Third Edition. United States: Plural Publishing, Incorporated.
2. Cummings, L. (2016). Case Studies in Communication Disorders. United Kingdom: Cambridge University Press.
3. Duffy, J. R. (2019). Motor Speech Disorders: Substrates, Differential Diagnosis and Management, Fourth Edition. E-Book. Elsevier Health Sciences.
4. Fish, M. A. (2015). Here's How to Treat Childhood Apraxia of Speech, Second Edition. United States: Plural Publishing, Incorporated.
5. Freed, D. B. (2023). Motor Speech Disorders: Diagnosis and Treatment, Fourth Edition. United States: Plural Publishing, Incorporated.
6. Giannoni, P., &Zerbino, L. (Eds.). (2022). Cerebral Palsy: A Practical Guide for Rehabilitation Professionals. Springer Nature.
7. Hegde, M. N., Pomaville, F. (2021). Assessment of Communication Disorders in Children: Resources and Protocols. United States: Plural Publishing, Incorporated.
8. Lindsay, L. A. (2020). Speaking of Apraxia: A Parents' Guide to Childhood Apraxia of Speech. United States: Woodbine House.
9. Murrell, K. (2023). Working with Childhood Apraxia of Speech: Theory and Practice for Speech and Language Therapists. United Kingdom: Routledge.
10. Panteliadis, C. P. (Ed.). (2018). Cerebral palsy: a multidisciplinary approach. Springer.

Practicum

a) With the help of models, charts, and software, identify the motor control centres in the brain.
b) Identify and list the characteristics of types of dysarthria in children (spastic, flaccid, athetoid, and ataxia)
c) Identify and list the characteristics from the speech and language sample of a child with childhood apraxia of speech

d) Perform oro-motor examination in five children and adults and compare
e) Demonstrate normal posture and breathing patterns required for varied speech tasks. Alter the postures and breathing patterns and notice changes in speech patterns.
f) Assess the DDK rate in five typically developing children.
g) Rate intelligibility of speech in five typically developing children. Discuss factors that influenced speech intelligibility and their ratings.
h) Observe and record (a) physical status, (b) oral sensory motor abilities and vegetative skills, (c) respiration, (d) phonation, (e) resonation, (f) articulation, and (g) language abilities in five typically developing children. Compare these with observations made from children with motor speech disorders.
i) Perform oro-motor exercises – isotonic and isometric. Discuss strategies to modify exercises for children.
j) Identify the symbols and type of Augmentative Alternative Communication system.
k) Design a low-tech AAC system for children with motor speech disorder.
l) List various multisensory and tactile cueing techniques used for children with apraxia of speech.
m) Identify from the video and list various prosthetic devices used in the treatment of childhood dysarthria.
n) Observe and list the signs and symptoms of dysphagia in children
o) Observe feeding and swallowing skills in different age groups of children: 1 infant, 1 toddler, and 1 older child. Identify the differences in feeding methods, food consistencies, food texture, and quantity used by these children.

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B5.3 M : Paediatric Audiology

Hours 75 (45 + 30) **Marks 100: Credits 4**

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

a. trace out auditory development in children
b. describe embryological development of the auditory system
c. justify, plan and execute programs for early identification of hearing loss in infants and children
d. administer appropriate test battery (behavioural and physiological tests) for diagnosis of hearing loss in infants and children, and
e. modify the test protocols/procedures, as appropriate, while testing difficult-to-test population

Unit 1: Development of Auditory System

a) Overview of paediatric audiology and fundamental terminology
b) Embryological development of auditory system and its relevance to clinical audiology
c) Maturation of the auditory system and neuroplasticity
d) Development of Auditory behaviour: prenatal hearing, newborn hearing, hearing in infants and toddlers

Unit 2: Early Identification of Hearing Loss

a) Incidence and prevalence of auditory disorders in children
b) Principles of early hearing detection and intervention

c) Need for early identification with reference to congenital versus acquired hearing loss, conductive and sensorineural hearing loss, mild hearing losses, sloping hearing losses, fluctuating hearing losses and unilateral hearing loss
d) Recommendations of the Joint committee on infant screening- various position statements and the evolution
e) High risk registers and their utilities in screening, sensitivity and specificity of high risk registers, relevance in Indian scenario

Unit 3: Paediatric Hearing Screening

a) Behavioural screening tests (behavioural observation audiometry), procedures, recording of response, interpretation of results.
b) Objective screening tests (e.g., Cribogram, auditory cradle, reflex inhibition audiometry, immittance, reflexometry, wide-band reflectance, OAE, evoked potentials - AABR)
c) Universal newborn hearing screening- concept, history, Indian and global scenario and challenges
d) Hearing screening in infants and toddlers: Indian and global context
e) Hearing screening in pre-schoolers and school-age children: Indian and global context

Unit 4: Assessment of Hearing Loss in Children

a) Behavioural assessment of hearing: Behavioural observation audiometry, conditioned orientation reflex audiometry, Visual reinforcement audiometry and its modifications, conditioned play audiometry,
b) Speech audiometry in children, material available, modifications required
c) Physiological assessment of hearing: Immittance evaluation including high frequency probe-tone tympanometry, Reflexometry, wide-band reflectance), otoacoustic

emissions, auditory brainstem response, auditory steady state responses and other evoked potentials

d) Test battery for diagnosing severity and type of hearing loss (conductive, cochlear pathology, auditory neuropathy spectrum disorder), factors affecting assessment of hearing in children
e) Counselling parents/caregivers regarding diagnosis and management of children with hearing loss

Unit 5: Assessment of Special Population

a) Diagnosis of auditory neuropathy spectrum disorder
b) Assessment of hearing children with multiple problems (additional needs)
c) Assessment of central auditory processing in children
d) Assessment of functional hearing loss in children
e) Assessment of vestibular problems in children
f) Assessment of tinnitus, hyperacusis and misophonia in children

Recommended Reading

1. Anne, S., Lieu, J., & Kenna, M. (2018). Pediatric Sensorineural Hearing Loss: Clinical Diagnosis and Management. (1st edition). Plural Publishing, Inc.
2. http://www.jcih.org/posstatemts.htm
3. Madell, J.R., Flexer, C., Wolfe, J., & Schafer, E.C. (2019). Pediatric Audiology: Diagnosis, Technology, and Management (3rd edition). Thieme
4. Madell, J.R., Flexer, C., Wolfe, J., & Schafer, E.C. (2020). Pediatric Audiology Casebook (2nd edition). Thieme.
5. Northern, J.L. & Downs, M.P. (2014). Hearing in Children. (6th edition). Plural Publishing, Inc.

6. Tharpe, A. M., & Seewald, R. (Eds.). (2016). Comprehensive Handbook of Pediatric Audiology. Plural Publishing.

Practicum

a) Observe infants with typical hearing abilities in the age range of 0-1 years and 1-2 years in their natural environments. Generate a report detailing their response to auditory stimuli.
b) Monitor a child with hearing impairment within the age range of 0-2 years in natural setting. Compile a report describing the child's responses to auditory stimuli both with and without the amplification device.
c) Administer HRR on at least three newborns and interpret responses.
d) Administer BOA and VRA on 5 children with typical hearing and 2 children with hearing impairment. Write a report detailing the instrumentation, procedure and interpretation.
e) Carryout immittance evaluation on 5 children with typical hearing and 2 children with hearing impairment and interpret the results
f) Record OAE on 5 children with normal hearing and 2 children with hearing loss and interpret the results.
g) Compare ABR wave forms of children across different age groups, ranging from birth to 24 months.
h) Record ABR on 5 children with typical hearing and observe ABR of 2 children with hearing impairment. Write a report detailing the instrumentation, instructions, and stimuli used, procedure and interpretation.
i) Employ role play to illustrate how the outcomes of audiological assessments are communicated to caregivers for children with the following conditions
    a. A child referred for hearing screening with history of high-risk factors.
    b. A child with chronic middle ear disease.
    c. A child with central auditory processing disorder (CAPD).
    d. A child with severe bilateral hearing impairment

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B5.4 M : Aural Rehabilitation

Hours 75 (45 + 30) **Marks 100: Credits 4**

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

a. describe the different communication options available for young children with hearing impairment
b. explain the impact of hearing impairment on auditory development, spoken language communication and quality of life
c. describe factors that affect acoustic accessibility and strategies to manage them at home, classroom and work environments
d. identify components of aural rehabilitation program for adults and administer different tools for assessment of hearing handicap, attitudes and beliefs that can impact aural rehabilitation
e. design activities for auditory training at different levels for children and adults

Unit 1: Listening, spoken communication and acoustic accessibility

a) Sensitivity period for auditory development
b) Impact of hearing impairment on auditory development, spoken language acquisition, parent child communication
c) Psychological impact of hearing loss,
d) Impact of hearing loss on quality of life, education, employment and financial burden
e) Hearing loss implications for speech perception: acoustics of speech
f) Optimizing hearing potential through hearing devices in adults and children
g) Barriers to acoustic accessibility: distance, signal to noise ratio, reverberation

h) Signal to noise ratio enhancing technologies personal FM, loop systems, desktop group systems, blue tooth connectivity

Unit 2: Communication and Education options for children with hearing loss

a) Parent/care giver support counselling,
b) Choosing communication options: Manual vs. oral form of communication
c) Different manual communication systems available
d) Cued speech and total communication
e) Educational placement of hearing impaired children: Preschool training, Integration, Partial integration, Segregation: day school vs. residential school, Inclusive vs. integrated school.
f) Educational problems of the individuals with hearing impairment and the measures taken to overcome the problems in India
g) Early intervention programs

Unit 3: Auditory learning

a) Terminology and historical backgrounds, auditory learning, auditory training, auditory verbal therapy
b) Creating optimum listening and learning environment for children at home, classroom situations and for adults at work situations
c) Factors affecting outcome of auditory learning
d) Methods of learning spoken language through listening (auditory oral vs auditory verbal)
e) Methods of auditory training in children and adults
f) Computer/App based modules for auditory training.
g) Unisensory vs multisensory approaches

Unit 4: Speech Reading and communication strategies

a) Definition and need
b) Visibility of speech sounds and assessing auditory-visual perception and only auditory perception
c) Overview of analytic and synthetic tests of speech reading for adults and children
d) Analytic and synthetic methods of speech reading training in adults and children
e) Factors influencing speech reading
f) Facilitative communication strategies: Repair strategies, anticipatory strategies, Conversational styles
g) Communication strategies training formal instruction, guided learning, real world practice

Unit 5: Managing children and adults with additional needs

a) Management of hearing loss associated with additional problems such as blindness, cognitive problems
b) Management of auditory neuropathy spectrum disorders
c) Management of central auditory processing disorders
d) Management of tinnitus and hyperacusis
e) Aural rehabilitation of older adults

Recommended Reading

1. Fitzpatrick, E.M., and Doucet S.P. (2013) (Eds). Paediatric Audiologic
2. Hosford-Dumm, H., Roser, R., & Valente, M. (2007). Audiology Practice Management (2nd edition edition). New York: Thieme.

3. Hull, R. H., (2014) ed. Introduction to Aural Rehabilitation 2nd edition Plural Publishing, San Diego Chapters 1, 2, 11 to 20
4. Manual, A publication of NIPMED, Chennai. Freely downloadable from http://niepmd.tn.nic.in/publication.php. ISBN 978-81-928032-5-8.
5. Mardell, J., & Flexer, C. (2013). Pediatric Audiology: Diagnosis, Technology, and Management (2nd ed.). New York, NY: Thieme.
6. Rehabilitation. Thieme, New York
7. Rout, N and Rajendran, S. (2015). Hearing aid Counselling and Auditory training
8. Schow, R.L. & Nerbonne, M.A., (2012). Introduction to Audiological Rehabilitation (6th edition), Allyn & Bacon, Boston.
9. Schwartz, S., (2007) Choices in Deafness : a Parent's guide to Communication Options , 3rd edition Woodbine house Bethesda
10. Status of Disability in India Hearing Impairment (2012) Rehabilitation Council of India, New Delhi
11. Tye-Murray, N., (2014) Foundations of Aural Rehabilitation: Children , adults and their family members 4th edition Plural Publishing San Diego

Practicum

a) Watch documentaries such as "Sound and Fury" (2001). Write a reflection of why parents made communication choices for their children
b) Follow on links to the above film that shows the status of the children with hearing impairment after a few years.
c) Learn at least 50 signs across different categories of Indian sign language. Make a video of you signing 10 sentences. Have a class mate interpret them.
d) Interview a parent of a child with hearing impairment on how they adapted their child to wear the hearing aids and /or implant. What were the first responses to sound they observed and how language and speech develop?
e) Complete a functional auditory evaluation on one child with hearing loss. Do a speech and language evaluation and also write a report on the child strengths and weakness.

f) Design and demonstrate auditory learning activities at the four levels awareness, discrimination, identification and comprehension. Ensure that the activities encompass different skill level and difficulty levels.

g) Develop a short audio/film/pamphlet for parents in your local language on one of the following: teaching parent to trouble shooting the hearing aid/cochlear implant, establishing consistent use of listening device, activities to facilitate language across different age groups

h) Visit a school for the deaf. Document your observation about the acoustic environment in the class, strategies used by the teacher to promote listening and spoken language

i) Listen to the speech recorded using hearing loss simulators (available on internet) and experience the sounds as heard by persons with different degrees of hearing loss. Write your observations on the same

j) j) Simulate hearing loss by plugging ears and administer sentence tests of word recognition. Write a report on the performance

k) Administer any three self-report questionnaires to three adults who have hearing loss and write a report of the relationship of their hearing loss to performance on the scale

l) Administer any three self-report questionnaires to three adults and older adults who have hearing loss and write a report of the relationship of their hearing loss to performance on the scale

m) Design a session of aural rehab program (Objectives, activities, outcomes assessment) for adults recently fitted with cochlear implant, group of 4 older adults.

n) Design an individualized program for an executive using a hearing aid for the first time, and an adult moving from an analog to a digital hearing aid

B5.5 MO: Community Based Rehabilitation and Disability Certification

Hours 15 **Marks 50: Credits 1**

a) Each participating institution can offer any of the following as minor optional. However, a course once offered cannot be repeated for the same batch.

b) The institution itself can draw the syllabus for the course.

a)	Developmental Paediatrics	b)	Genetics
c)	Counselling and Guidance	d)	Basics of Sign Language
e)	CBR	f)	Dysphagia
g)	Auditory Habilitation	h)	Vestibular Disorders
i)	Disability Certification	j)	ASLP in Practice
k)	AAC	l)	Telerehabilitation

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B5.6 M : Clinicals in Speech-language Pathology

Hours 90+ **Marks 100 : Credits 3**

General Considerations

a. a) Clinical work should be primarily linked to the theory courses of the semester.

b) After completion of clinical postings in Speech–language diagnostics, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) Different samples /procedures required to analyze voice production mechanism (acoustic/ aerodynamic methods / visual examination of larynx/ self-evaluation)
b) Assess parameters of voice and breathing for speech.
c) Document the voice production mechanism in different animals and birds: compare these with human voice production.
d) Different samples /procedures required to analyze speech production mechanism in children with motor speech disorders.
e) Differential diagnosis of motor speech disorders in children.
f) Procedures to assess laryngectomees and provide management options.
g) Document the voice production mechanism in different animals and birds: compare these with human voice production.

Know-how

a) To assess posture and breathing for speech in children with motor speech disorders.
b) To record a voice sample for acoustic and perceptual analysis.
c) To assess the speech parameters of different types of speech in laryngectomee
d) To consult with inter-disciplinary medical/rehabilitation team and counsel the individual/ family regarding management options and prognosis.
e) Observe and document the findings from pre-recorded/ live samples of laryngeal examination procedures and compare differences across various voice disorders.
f) Use software / instruments used in the assessment and management of voice disorders.
g) Identify various types of voice prostheses, tracheostomy tubes, and artificial larynx and its parts. Document the use of these prostheses in various types of disorders.

Show

a) Perceptually analyse paediatric, adult, and geriatric voice using a standard test tool and compare the differences across age and gender.
b) Perform aerodynamic analysis (spirometry, MPD, s/z ratio) of paediatric, adult, and geriatric voice and compare the differences across age and gender.
c) Perform acoustic analysis of paediatric, adult, and geriatric voice using a software/ instrument and compare the differences across age and gender.
d) Analyse paediatric, adult, and geriatric voice using electroglottography and compare the differences in various parameters across age and gender.
e) Evaluate the voice of individuals with voice disorders using perceptual, acoustic, and aerodynamic analysis and EGG to compare the results across age, gender, and different types of voice disorders.
f) Administer and document the findings of the quality-of-life questionnaire/ PROM on individuals with voice disorders.

g) Assess the voice of at least 1 professional voice user. Describe the differences in the procedure for assessment of voice in PVU and non-PVU.
h) Prepare a vocal hygiene checklist for individuals with voice disorders.
i) Prepare a vocal hygiene checklist for different professional voice users (Singers, teachers, drama artists etc.) and understand the difference.
j) Counsel patients with voice disorders.
k) Demonstrate voice therapy techniques and document the same.
l) Analyze the speech profile of 2 individuals with laryngectomy.
m) Prepare a checklist/pamphlet illustrating care of the stoma, T tubes, and prosthesis used by laryngectomee.
n) Perform OPME in 5 children with motor speech disorders.
o) Check oral motor reflexes in infants with typical development and with motor speech disorders and document differences if any.
p) Evaluate posture, respiration, phonation, resonation, DDK, articulation, language, and speech intelligibility in children with motor speech disorders. Compare how these differ from typically developing children.
q) Prepare a developmental chart for feeding skills from birth to 3 years.
r) Observe feeding and swallowing skills in new-borns, infants, toddlers, and older children. Identify the differences in feeding methods, food consistencies, texture, quantity, feeding habits, and feeding appliances.
s) Evaluate feeding skills in children with motor speech disorders and prepare a plan of action to improve these skills.

Do

a) Write a baseline report for an individual with voice disorder.
b) Write a lesson plan for an individual with voice disorder.
c) Evaluate children and adults with speech sound disorders using protocol at your department/ institute and document the same.
d) Plan and take therapy for a laryngectomee.

e) Plan and take therapy for individuals with voice disorders. Document the differences in management across professional and non-professional voice users and various types of disorders.

B5.7 M : Clinicals in Audiology

Hours 90+ **Marks 100 : Credits 3**

General Considerations

a) Clinical work should be primarily linked to the theory courses of the semester.

b) After completion of clinical postings in Audiology, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) Different protocols and interpretation in tympanometry and reflexometry.
b) Different protocols used and interpretation in auditory brainstem responses and ASSR
c) Protocols for screening and diagnostic otoacoustic emissions and their interpretation
d) Tests to assess vestibular system
e) Different indications for selecting implantable hearing devices
f) Various speech stimulation and auditory training techniques

Knowhow

a) To administer auditory brainstem responses and ASSR for the purpose of threshold estimation and ABR for sight of lesion testing
b) To administer tympanometry and reflexometry
c) To administer multifrequency tympanometry and calculate resonance frequency
d) To administer high risk register
e) To modify the given environment to suit the needs of hearing impairment

Show

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

Do

a) Threshold estimation on 5 infants (< 2 years) and 2 adult
b) TEOAE and DPOAE on 5 infants (<2 years) and 2 adults
c) Immittance evaluation on 3 children and 3 adults
d) BOA on 5 infants (<2 years)
e) VRA on 2 infants (6 month – 3 year)
f) Conditioned play audiometry – 3 children (3-6 years)
g) Appropriate auditory training on 5 children with hearing loss
h) Hearing aid fitment on 1 infant (< 3 years) 2 children (3-6 years)
i) Test battery report of hearing assessment for 3 children and 3 adults

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Semester 6

B6.1 M: Adult Language Disorders

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. identify the characteristics of language disorders in adults
b. decipher the causes of language disorders in adults,
c. evaluate and diagnose speech-language characteristics in adults with of language disorders
d. plan strategies to manage speech-language and related errors in adults with of language disorders
e. counsel and provide guidance to caregivers on the management of language disorders
f. understand the concept of cognitive communication disorders in adults, and
g. initiate advocacy programs for adults with language disorders

Unit 1: Neurosciences of Aphasia and Other Adult Language Disorders with Cognitive Communication Disorders

a) Neuroanatomical, neurophysiological, and neurochemical correlates for language function.
b) Neurolinguistic models and language processes – connectionists, hierarchical, global, process, and computational models.
c) Historical aspects of aphasia
d) Language processing in right hemisphere
e) Language processing in bi/ multilingual population

Unit 2: Language Disorders in Adults

a) Definitions of language disorder in adults (aphasia)
b) Causes of language disorder in adults
c) Different classifications of aphasia
d) Types of aphasia and their speech, language, behavioural and cognitive characteristics
e) Comorbidities in individuals with aphasia
f) Overview of Speech-language characteristics in
    a. Traumatic Brain Injury
    b. Right Hemisphere Damage
    c. Dementia
    d. Primary Progressive Aphasia
    e. Schizophrenia
    f. Metabolic disorders
    g. Alcohol-induced disorders

Unit 3: Assessment of Aphasia

a) Types and importance of different forms of language assessment of adults.
b) Types of tests and tools for assessment of language in adults
c) Description of tools and test for assessment and diagnosis of language in adults (Rationale, Administration, Scoring, and Interpretation) WAB, BDAE, Token test, Revised Token Test, –BST, WAB, RTT, BAT, LPT.
d) Tools and tests adapted/ developed across languages in India for assessment of language in adults (Rationale, Administration, Scoring, and Interpretation).
e) Overview of tests and tools for assessment of speech, language, linguistic, and cognition of adults with non-aphasic cognitive communication disorders (e.g ACE, BTHI, MMSE, ABCD, CLAP, CLQT, CCABI, FCP)

Unit 4: Management of Language Disorders in Adults

a) Principles of Language Intervention for individuals with aphasia
b) Concept of spontaneous recovery, reorganization and retraining.
c) Approaches and techniques for management of aphasia - Deblocking, VCIU, LOT, PACE, Stimulation Facilitation Approach, RET, VAT, Semantic Feature Analysis, TAP, TUF, MIT, TWA, Contingency naming training and others.
d) Considerations of co morbidities in planning and implementation of therapy for individuals with aphasia
e) Introduction to AAC for adults with aphasia.
f) Team approach in rehabilitation of adults with aphasia. Team members and their roles in rehabilitation of adults with aphasia.
g) Importance and role of caregivers/ family members in rehabilitation of persons with aphasia.

Unit 5: Rehabilitation Issues Relating to Adults with Language Disorders

a) Factors influencing the assessment and intervention for language in the context of bilingual and multilingual influences.
b) Factors influencing the assessment and management of language in persons who are preliterate, illiterate and literate.
c) Importance of assessment of quality of life of adults with language disorders
d) Generalization and maintenance issues in adults with language disorders
e) Recovery patterns and prognosis in adults with language disorders
f) Age related influence in adults with language disorders
g) Rights of adults with language disorders

Recommended Reading

1. Albert, M. L & Obler, L. K. (1978). The bilingual brain-neuropsychological and neurolinguistic aspects of bilingualism: Perspectives in neurolinguistics and psycholinguistics series. New York: Academic Press.
2. Chapey, R. (2008). Language Intervention strategies in aphasia and related neurogenic communication disorders. Philadelphia: Lippincott Williams and Wilkins
3. Davis, G. A. (2014). Aphasia and related cognitive communicative disorders. USA: Pearson Education Inc.
4. Edwards, S. (2005). Fluent Aphasia. Cambridge University Press.
5. Hegde, M. N., & Freed, D. (2022). A coursebook on aphasia and other neurogenic language disorders. San Diego: Plural Publishing Group Inc.
6. Holmgren, E. & Rudkilde, E. S. (2013). Aphasia: classification, management practices, and Prognosis. New York: Nova Sciences Publishing.
7. Lapointe, L. L., Murdoch, B. E., & Stierwalt, J. A. G. (2010). Brain-based Communication Disorders. Plural Publishing Inc. Stemmer, B., & Whitaker, H. A. (Eds.). (2008). Handbook of Neuroscience of Language. Elsevier.
8. Manasco, M. H. (2014). Introduction to Neurogenic communication disorders Barlington: Jones and Barlett Learning.
9. Petrides, M. (2014). Neuroanatomy of language regions of the human brain. UK: Elsevier.
10. Roth, F. P. &Worthington, C. K. (2016). Treatment resource manual for speech-language pathology. 5th Ed., Delmar, USA: Cengage Learning.

Practicum

a) Identify different areas of the brain (cortical and subcortical) by looking at a model/ image and label the language areas.
b) List the language characteristics of persons from video samples (atleast 5) and identify the most likely type of aphasias.
c) Administer case history and WAB (English) or BDAE (English) on two normal adults, do the scoring and write the interpretation.

d) Observe administration of case history and any one complete language test for adult with stroke. Do the scoring and interpretation. Write a complete diagnostic report (with informal observations and formal test findings).
e) Demonstrate (through role play in class) various therapy techniques for in the management of aphasia.
f) Discuss in class and formulate therapy plans (including activities) based on assessment reports of two persons with aphasia.
g) Demonstrate counselling of caregivers/ family members by role play for a given profile of an individual with adult language disorder (one each).
h) Prepare a flier/ video/ powerpoint for awareness of role of speech language pathologist for rehabilitation of individuals with aphasia.

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B6.2 M : Motor Speech Disorders in Adults

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. identify the motor processes and control mechanisms in speech production
b. describe terminologies, classification and characteristics of motor speech disorders in adults
c. assess motor speech disorders in adults, and differentiate them other associated / related disorders
d. plan approaches to management of dysarthria and apraxia of speech in adults
e. plan strategies to assess and treat feeding and swallowing problems in adults, and
f. counsel the affected clinical population and their family members

Unit 1: Types of dysarthria: anatomical basis, etiology and speech characteristics

a) Speech Motor System
b) Definition and classification of dysarthria
c) Broad etiologic categories of dysarthria in adults (Degenerative diseases, inflammatory diseases, toxic-metabolic diseases, neoplastic diseases, traumatic diseases, vascular diseases)
d) Different dimensions of dysarthria (Age of onset, cause, natural course, site of lesion, pathophysiology, speech characteristics, speech characteristics, severity)
e) Anatomic and physiologic substrates, etiology and speech characteristics of different types of dysarthrias: Spastic Dysarthria; Flaccid Dysarthria; Hypokinetic dysarthria;

Hyperkinetic dysarthria; Ataxic Dysarthria; Mixed dysarthria; Unilateral Upper Motor Neuron Dysarthria

Unit 2: Assessment and diagnosis of dysarthria

a) Behavioural assessment of speech subsystems in dysarthria: description of tasks, observations and measures - Respiratory subsystem; Phonatory Subsystem; Resonatory subsystem; --Articulatory subsystem - Speech intelligibility and prosody - Formal/standard protocols for assessment of dysathria
b) Instrumental assessment of speech subsystems in dysarthria: Acoustic, kinematic and physiological assessment
c) Advantages and disadvantages of behavioural and instrumental assessment of dysarthria
d) Differential diagnosis of dysarthria from Apraxia of Speech and Aphasia.
e) Differential Diagnosis of types of dysarthria

Unit 3: Management of dysarthria

a) Brief overview of medical intervention, surgical intervention for dysarthria on the speech in persons with acquired dysarthria
b) Rationale for behavioural intervention and general principles for behavioural intervention including principles of motor learning
c) Facilitative approach: vegetative, sensorimotor and reflex based intervention systems approach- Behavioural management of speech subsystems (Including use of prosthesis and AAC) - Respiratory subsystem; Phonatory subsystem; Resonatory subsystem; Articulatory subsystem- Prosody including rate of speech

Unit 4: Assessment and management of apraxia of speech (AOS)

a) Definition, and classification of acquired apraxia in adults – Nonverbal apraxia's and verbal apraxia / AOS
b) Anatomical and physiological substrates and etiologies of AOS
c) Characteristics of nonverbal apraxia & verbal apraxia
d) Behavioural assessment of apraxia of speech – Tasks, observations and measures related to an assessment protocol; Formal assessment batteries/scales and protocols for assessment - Instrumental analysis of speech of apraxia in adults: Acoustic, Kinematic and Physiological
e) Management of apraxia of speech including AAC and speech/communication strategies

Unit 5: Dysphagia

a) Overview on neuroanatomy of swallowing
b) Stages of swallowing
c) Causes of dysphagia including, neurogenic, mechanical and motility - Signs and symptoms of dysphagia - Subjective and bedside evaluation of dysphagia
d) Brief orientation on instrumental evaluation of swallowing
e) Facilitatory and compensatory techniques in treatment of dysphagia

Recommended Reading

1. Carrau, R. L., Murry, T., Howell, R. J. (2016). Comprehensive Management of Swallowing Disorders, Second Edition. United States: Plural Publishing, Incorporated.
2. Duffy, J. R. (2019). Motor Speech Disorders: Substrates, Differential Diagnosis and Management, Fourth Edition. E-Book. Elsevier Health Sciences.

3. Fogle, P. T. (2022). Essentials of communication sciences & disorders. Jones & Bartlett Learning.
4. Freed, D. B. (2023). Motor Speech Disorders: Diagnosis and Treatment, Fourth Edition. United States: Plural Publishing, Incorporated.
5. Gatokowska, I. (2020). Diagnosing Dysarthria in Adults: A New Speech Assessment Method for Polish, English, and Spanish (Vol. 3). AE Academic Publishing.
6. Groher, M. E., Crary, M. A. (2020). Dysphagia: Clinical Management in Adults and Children. United Kingdom: Elsevier - Health Sciences Division.
7. Hegde, M. N., Freed, D. B. (2020). Assessment of Communication Disorders in Adults: Resources and Protocols. United States: Plural Publishing, Incorporated.
8. Johnson, A. F., & Jacobson, B. H. (2016). Medical Speech-Language Pathology: A Practitioner's Guide. Germany: Thieme Medical Publishers.
9. Porcaro, C. K. (2022). Improving Speech Intelligibility in Adults: Clinical Application of Evidence-Based Strategies. United States: Plural Publishing, Incorporated.
10. Walshe, M., & Miller, N. (Eds.). (2021). Clinical Cases in Dysarthria. Routledge.
11. Weismer, G., Brown, D. K. (2019). Introduction to Communication Sciences and Disorders: The Scientific Basis of Clinical Practice. United States: Plural Publishing, Incorporated.

Practicum

a) Identify the cranial nerves and mention their origin and insertion in a picture or model.
b) Demonstrate methods to assess the cranial nerves using non-speech and speech tasks.
c) Perform Frenchay's Dysarthria Assessment (FDA) on any two neurotypical adults. Identify the tasks that assess the different cranial nerves and subsystems of speech from the battery of tasks in FDA.

d) Complete a table based on different neurological disorders or etiologies of motor speech disorders. Note the pathophysiology, natural course, type of dysarthria, and other concomitant issues.
e) View videos of persons with various neurological conditions resulting in dysarthria and document the clinical signs and symptoms of the neurological conditions as appropriate.
f) Identify the signs of UMN and LMN based on video samples of persons with dysarthria.
g) Perform assessments of the respiratory system using speech and non-speech tasks in 10 neurotypical adults.
h) Record different types of speech samples (sustained phonation, continuous speech, etc.) from 10 neurotypical adults and perform perceptual assessment of speech and acoustic analysis on the appropriate samples.
i) Perform a complete perceptual assessment of different speech subsystems on the audio and video recordings of five neurotypical adults. Administer Duffy's intelligibility rating scale.
j) Compare the perceptual assessments with the recorded speech samples of persons with dysarthria.
k) Prepare an informal list of speech stimuli in any Indian language for assessment of speech-motor programming.
l) Demonstrate strategies for AOS management.
m) Prepare a low-tech AAC for functional communication to be used by an individual with apraxia of speech or persons with dysarthria.
n) Perform a clinical swallow assessment on five healthy individuals.
o) Demonstrate strategies for dysphagia management.

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B6.3 M : Implantable Hearing Devices

Hours 75 (45 + 30) **Marks 100 : Credits 4**

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

a. assess candidacy for bone conduction hearing implants, middle ear implants, cochlear implants, and auditory brainstem implants
b. select the appropriate device depending on the audiological and non-audiological findings,
c. manage post-implantation audiological management
d. assess the benefit derived from implantation, and
e. counsel the parents/care givers during different stages of implantation

Unit 1: Need for Implantable Hearing Devices

a) Verification of hearing aids using functional gain, real ear insertion gain : REIG, REUR, REAR, REOR, RESR, REIG, REAG, RECD
b) Use of impedance, OAEs and AEPs in the verification of hearing aids
c) Hearing aid validation/outcome measures including questionnaires
d) Selection and verification of use of Assistive listening devices
e) Limitation of hearing aids and assistive listening devices
f) Team involved in selection of different implantable devices

Unit 2: Cochlear Implant and Auditory Brainstem Implants

a) Types of cochlear implants (CI), components & features based on technology and design

b) MRI Compatibility, Electrode types and options
c) Types of Sound Processors, components & features based on technology and design
d) Bilateral vs Unilateral CI, Bilateral Bi-modal CI, Unilateral Bi-modal CI (electro acoustic stimulation)
e) Candidacy Evaluation for CI: Audiological and Non-audiological
f) Overview of Auditory brainstem implant (ABI), Need and candidacy for ABI

Unit 3: Post Cochlear Implant Rehabilitation

a) Overview of surgical approaches, complications
b) Sound coding strategies in CI
c) Objective measures for intra-op monitoring and post–op management
d) ESRT, ECAP, EABR, aided cortical potentials, ECochG
e) Mapping of CI, MAP verification and assessment of benefit

Unit 4: Bone Conduction Hearing Implants and Middle Ear Implants

a) Bone conduction hearing aids vs bone conduction and middle ear implants
b) Active and passive types and components
c) Candidacy assessment for bone conduction hearing implants and middle ear implants
d) Surgical Considerations, approaches and techniques, risk and complications
e) Intra-Op monitoring and post –op fitting and assessment of benefit

Unit 5: Counselling and Care and Maintenance of Implantable Devices

a) Pre-implant counselling and informed consent for children and adults
b) Post-implant counselling for parents/caretakers of children using CI
c) Post -implant counselling for adults using CI and significant others

d) Care and maintenance of implantable devices
e) Measuring outcome of implantable devices
f) Rehabilitation methods and techniques for pre-lingual implantees.
g) Rehabilitation methods and techniques for post lingual implantees
h) Team involved in rehabilitation with implantable devices

Recommended Reading

a) Clark, G., Cowan, R. S. C., & Dowell, R. C. (1997). Cochlear Implantation for Infants and Children: Advances. Singular Publishing Group.
b) Cooper, H., & Craddock, L. (2006). Cochlear Implants: A Practical Guide. Wiley.
c) Dutt, S. N. (2002). The Birmingham Bone Anchored Hearing Aid Programme: Some Audiological and Quality of Life Outcomes. Den Haag: Print Partners Ipskamp.
d) Eisenberg, L. S. (2009). Clinical Management of Children with Cochlear Implants.Plural Publishing.
e) Gifford, R. H. (2013). Cochlear Implant Patient Assessment: Evaluation of Candidacy, Performance, and Outcomes. Plural Publishing.
f) Hagr, A. (2007). BAHA: Bone-Anchored Hearing Aid. International Journal of Health Sciences, 1(2), 265–276.
g) Kompis, M., & Caversaccio, M.-D.(2011). Implantable Bone Conduction Hearing Aids.Karger Medical and Scientific Publishers.
h) Mankekar, G. (2014). Implantable Hearing Devices other than Cochlear Implants. Springer India.
i) Niparko, J. K. (2009). Cochlear Implants: Principles & Practices. Lippincott Williams & Wilkins.

Practicum

a) Perform real ear insertion measurements using different hearing aids (body level and ear level, hearing aids of different gains)
b) Compare speech perception through conventional BTE and RIC hearing aids using a rating scale
c) Watch videos of BAHA, middle ear implant, cochlear implant
d) Create hypothetical cases (at least 5 different cases) who are candidates for cochlear implantation.
e) Make protocol for recording an EABR
f) List down the technological differences across different models of cochlear implants from different companies, their cost
g) Observation of mapping
h) Watching of videos on AVT
i) Watch video on cochlear implant surgery

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B6.4 M : Audiology in Practice

Hours 60 **Marks 100 : Credits 4**

Objectives: After completing the course, the student will able to

a. describe the highlights of legislations relating to hearing impairment and other disabilities
b. incorporate ethical practices in professional service delivery. Provide information on welfare measures, policies of government when needed, describe different strategies to create awareness of hearing impairment and programs to address them
c. define the different clinical practice settings in audiology with reference to their requirement, protocols and role and responsibility of audiologist
d. implement programs to measure noise and its impact on humans,
e. plan strategies to address sequel of excessive noise exposure in industries and the community, and
f. describe terminology, technology and methods used in tele practice, and their application in audiological service delivery

Unit 1: Scope, legislation and ethics in audiology

a) Scope of practice in audiology (National – ISHA & International body - AAA)
b) Professional ethics (ISHA)
c) Legislations and conventions relating to disability: need and historical aspects
d) Classification of hearing impairment and disability certification,
e) Rehabilitation Council of India Act (1992) and its amendments
f) Rights of Persons with Disability Act,1995, 2016
g) National Trust Act (1999)

h) Right to Education (2012)
i) Biwako Millennium framework (2003) and Salamanca Statement 1994, UNCRPD
j) National Education Policy and rights of persons with disabilty
k) Concept of barrier free access and universal design relating to individuals with hearing impairment

Unit 2: Hearing health and strategies for prevention of hearing impairment

a) Epidemiology of hearing disorders
b) ICD and ICF
c) Levels of prevention: Primary, secondary and tertiary
d) National programs and efforts national institutes
e) Welfare measures by Government,
f) Camps (planning, purpose, organizing, and providing remedial measures)
g) Public education and information (media, radio broadcasts, street plays) Hearing health and prevention programs (hearing help line, dangerous decibels, online hearing tests etc.)

Unit 3: Audiological practice in different settings

a) Audiological Private practice
b) ENT clinics
c) Pediatric / neonatology clinic/departments
d) Neurology departments
e) Factories and Industry
f) Hearing aid dispensing center / hearing aid industry
g) Rehabilitation centers such as DRC/CRCs
h) Schools for the hearing impaired
i) Cochlear implant clinics

j) Multiple handicap habilitationcenter
k) and others

Unit 4: Noise and hearing conservation in industry and community

a) Introduction to noise, types
b) Sources of noise in the industry and community
c) Effects of noise in the auditory system (outer, middle and inner ear)
d) Temporary threshold shift, permanent threshold shift, factors increasing the risk of NIHL
e) Non-auditory effects of noise (physiological, psychological, stress, sleep, job productivity, and accidents)
f) Legislations related to noise, permissible noise exposure levels, workers compensation, OSHA standards, Indian legislations related to noise
g) Instrumentation, measurement and procedure for measuring noise in industry
h) Instrumentation, measurement and procedure for measuring noise in community
i) Hearing conservation program (HCP), steps, record keeping, Ear protective devices

Unit 5: Scope and practice of tele audiology

a) Introduction to tele-health: definition, history of tele-health
b) Terminologies-tele-health, tele medicine, tele practice
c) Connectivity: internet, satellite, mobile data
d) Methods of tele-practice-store and forward and real time
e) Ethics and Regulations for tele-audiology
f) f) Requirements/Technology for tele- audiology: Web based platforms, Video conferencing, infrastructure, Manpower at remote end and audiologist end, training assistants for tele-audiology Audiological screening using tele-technology : new born hearing screening, school screening, community screening, counselling

g) Diagnostic audiological services using tele-technology : video otoscopy, pure tone audiometry, speech audiometry, oto acoustic emission, tympanometry, auditory brainstem response

h) Intervention / aural rehabilitation using tele-technology: hearing aid counselling and troubleshooting, tinnitus, counselling, aural rehabilitation services, AVT, and counselling

Recommended Reading

1. Audiology Telepractice; Editor in Chief, Catherine V. Palmer, Ph.D.; Guest Editor, Greg D. Givens, Ph.D. Seminars in Hearing, volume 26, number 1, 2005.
2. b) Bergland, B., Lindwall, T., Schwela, D.H., eds (1999). Guidelines on Community noise http://www.who.int/docstore/peh/noise/guidelines2.html WHO 1999
3. BIS specifications relating to Noise Measurements.- IS:7194-1973 Specification for assessment of noise exposure during work for hearing conservation purposes.
4. Census of India information on disability
5. Dobie, R. A (2001). Medical legal evaluation of hearing loss, 2nd Ed.
6. Hearing health and strategies for prevention of hearing impairment WHO (2001).
7. International classification of Functioning, Disability and Health. Geneva: WHO
8. http://www.asha.org/Practice-Portal/Professional-
9. Issues/Audiology-Assistants/Teleaudiology- Clinical-Assistants/
10. http://www.asha.org/uploadedFiles/ModRegTelepractice.pdf
11. IS:10399-1982 Methods for measurement of noise emitted by Stationary vehicles
12. IS:6229-1980 Method for measurement of real-ear
13. IS:9167-1979 Specification for ear protectors. 95
14. IS:9876-1981 Guide to the measurement of airborne acoustical noise and evaluation of its effects on man-
15. IS:7970-1981 Specification for sound level meters.
16. IS:9989-1981 Assessment of noise with respect to community response.

17. John Ribera. Tele-Audiology in the United States. In Clinical Technologies: Concepts, Methodologies, Tools and Applications (pp. 693-702), 2011. Hershey, PA: Medical Information Science Reference. doi:10.4018/978-1-60960-561-2.ch305
18. Lipscomb, D. M. (1994). Hearing conservation – In industry, schools and the military.
19. Philippe Valentin Giffard. Tele-Audiology. Tort, 2012. ISBN 6139256615,
20. Rawool, V. W. (2012). Hearing conservation in occupational, recreational, educational and home setting. Thieme: New York
21. RCI, PWD and National Trust, and Right to education act
22. Richard Wootton, John Craig, Victor Patterson, editors. Introduction to telemedicine. Second edition. London: The Royal Society of Medicine Press Ltd. 2006. p. 206
23. Salamanca statement and framework for action
24. Scope of practice by RCI
25. Swanepoel de W, Hall JW 3rd .A systematic review of tele health applications in audiology.Telemed J E Health. 2010 Mar;16(2):181-200.

Practicum

a) Undertake the activities such as 'Dangerous decibel" program (www. dangerousdecibels.org)
b) Noise measurement and attenuation measurement of ear protection devices.
c) Sound level meter measurement in different areas (generator room, audio rooms)
d) Visit an audiologist in different practice settings and provide a report
e) Administer ICF protocols for patients with different disorders
f) Explore websites of national institutes, hearing aid companied, NGOs in disability field and describe the accessibility features and information provided
g) Remote control a PC based audiology equipment connected to internet using any authorized desktop sharing software
h) Develop one pamphlet/poster/ in local language that would address some aspect of audiology practice

i) Perform Accessibility ability of your institute/centre and prepare a report

j) Organize at least one camp in a remote rural areas

B6.5 MO: Minor Compulsory

Hours 75 (45 + 30) **Marks 100: Credits 4**

a) This is a Rehabilitation Council of India stipulated course with modules on ethics, computers, soft skills, citizenship values, among others.

b) The syllabus for the course will be given by RCI itself.

c) Examination is to be conducted by the participating institute itself, but marks shall be entered in the university marks card.

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B6.6 M : Clinicals in Speech-language Pathology

Hours 90+ **Marks 100 : Credits 3**

General Considerations

a. Clinical work should be primarily linked to the theory courses of the semester.
b. After completion of clinical postings in Speech–language diagnostics, the student will have the concepts (know), ability to apply (know how), demonstrate skills (a clinical diary/logbook based on clinical reports/recordings) (show) and carry out the following on patients/client contact (do) the following:

Know

a) Identify the cortical and subcortical language areas from the diagram/ model of the brain.
b) Identify the cranial nerves involved in speech and swallowing mechanism, their origin, and insertion from an image/ model. Also, document the function of these nerves.
c) Prepare a table of processes and components involved in various conceptual programming levels of speech production.
d) Prepare a list of linguistic and non-linguistic characteristics of different types of aphasia.
e) Explore software used for the management of motor speech disorders and adult language disorders.
f) Procedures to assess motor speech disorders in adults
g) Differential diagnosis of motor speech disorders in adults.
h) Procedures to assess individuals with adult language disorders, and other related

conditions.

Know-how

a) Differentially diagnose speech and language characteristics in various types of aphasia.
b) Differentially diagnose speech and language characteristics in aphasia and right hemisphere damage.
c) Administer bilingual aphasia test on individuals with aphasia.
d) Identify the signs of UMN and LMN lesion from video samples.
e) Using 'Darley, Aronson, and Brown's (1969 a, b) speech clusters for different dysarthria', prepare a profile of speech characteristics of 1 adult/ geriatric with dysarthria.
f) Use MAAT- K/ MANAT-K/ MAFAT- K for the treatment of individuals with aphasia.
g) Assess posture, breathing, speech, and swallowing in adults with motor speech disorders.
h) To record a sample for analysis of language and speech skills in adults with cognitive communication disorders.
i) To consult with inter-disciplinary medical/ rehabilitation team and counsel the individual/family regarding management options and prognosis.

Show

a) Perform bedside screening for individuals with stroke/ TBI/ other neurological disorders.
b) Perform bedside screening for individuals with dysphagia.
c) Assess speech characteristics of individuals with aphasia using a standardised test tool.

d) Assess speech characteristics of individuals with motor speech disorders using a standardized test tool (Include respiration, pitch, loudness, voice quality, resonance, articulation, prosody, DDK, intelligibility, and any other features)
e) Assess cognitive-linguistic skills of neurotypical individuals and individuals with cognitive-communication disorders using a screening/ diagnostic tool. Compare the differences in characteristics of these individuals.
f) Assess the quality of life of an individual with adult language disorder using a standard test tool (eg. SAQOL).
g) Demonstrate one technique (based on EBP) for the treatment of individuals with aphasia.
h) Counsel family members of an individual with aphasia/ dysarthria (Prepare a counselling checklist /guideline).
i) Perform various oral motor exercises used for the treatment of dysarthria (Prepare steps involved for various oral motor exercises).
j) Dysphagia assessment –minimum of 2 children and adults.
k) Goals and activities for therapy (including AAC) based on assessment/ test results for adults with neuro-communication disorders.

Do

a) Prepare a low-tech AAC for functional communication of individuals with aphasia/ apraxia or any other neurogenic communication disorders.
b) Perform OPME, cranial nerve examination, and examination of reflexes on adults/ geriatrics with motor speech disorders. Compare between neurotypical adults and adults with neurological deficit (Check for strength, speed, accuracy, range, steadiness & tone of oral muscles)
c) Bed side evaluation of individuals with cognitive communication disorders – Minimum of 2 individuals.
d) Plan and give therapy for individuals with motor speech disorder.
e) Plan and give therapy for individuals with adult language disorder.

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B6.7 M : Clinicals in Audiology

Hours 90+ **Marks 100 : Credits 3**

After completion of clinical postings in Audiology, the student will have the concept (Know), ability to apply (Knowhow), demonstrate in a clinical diary/log book (Show), and perform (Do) the following on clinical population.

Know

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

Knowhow

a) Carryout noise survey in Industry and community
b) Carryout mapping of cochlear implant in infants and children using both objective and subjective procedures
c) Troubleshoot cochlear implant

Show

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

Do

a) AVT on at least 3 children with hearing impairment
b) Trouble shooting and fine tuning of hearing aids on at least 5 geriatric clients
c) Programming of hearing aid on at least 5 geriatric clients and 3 children
d) BOA on 5 children (<2 years)
e) VRA on 2 children (6 month – 3 year)
f) Conditioned play audiometry on 3 children (3-6 years)
g) At least one activity for different stages involved in auditory training
h) Carry out real ear insertion gain measurements on5 clients
i) Complete audiological report for 2 children and 2 adults with hearing loss and counsel the client/caretaker about hearing loss and further recommendations

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Semesters 7 and 8

B7.1 M Clinicals in Speech-language Pathology

(Exam at the end of 8th semester)

Hours: 600 - Marks: 100 - Credits: 20

General Consideration

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

General

a) Diagnosis and management of speech, language, and swallowing disorders across the life span.
b) Report evaluation findings, counsel, make appropriate referrals and liaise with professionals from related fields.
c) Plan and execute intervention and rehabilitation programs for persons with speech language, communication, and swallowing disorders.
d) Develop and maintain clinical documentation related to persons with speech-language, communication, and swallowing disorders

e) Engage in community-related services such as camps, awareness programs specifically, and community-based rehabilitation activities, in general.
f) Gain experience in different set-ups and be able to establish speech centers in different set-ups
g) Advise on the welfare measures available for their clinical clientele and their families.
h) Advise and fit appropriate aids and devices for the clinical population.
i) Administer quality of life questionnaires on persons with communication disorders.
j) Make appropriate referrals and liaise with professionals from related fields.
k) Gain experience in different clinical set ups and be able to establish speech-language centers.
l) Advise on the welfare measures available for their clinical clientele and their families.

B7.2 M Clinicals in Audiology

(Exam at the end of 8th semester)

Hours: 600 - Marks: 100 - Credits: 20

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

a) Carry out screening for hearing and balance problems across life span
b) Assess and diagnose of hearing disorders across life span.
c) Prepare audiological report, counsel and make appropriate referrals.
d) Plan and execute intervention and rehabilitation programs for persons with hearing disorders
e) Document records related to persons with hearing disorders
f) Engage in community related services such as camps, awareness programs specifically, and community-based rehabilitation activities, in general.
g) Make appropriate referrals and liaise with professionals from related fields.
h) Be able to establish Audiology clinics in different set-ups
i) Advise on the welfare measures available for their clinical clientele and their families.
j) Advise and fit appropriate aids and devices for their clinical population.

APPENDIX- III

Regulations governing Clinical Internship of the 4-year BASLP program

Objectives: The objectives of the clinical internship are to

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

Guidelines

1.0 Internship is mandatory

2.0 Duration: One academic year (10 months) split into two semesters (7 and 8).

3.0 Eligibility: Clinical internship will start immediately after the candidate completes the academic and clinical training till the 6th semester. However, this

clause on eligibility shall be read and interpreted in consonance with Clause 14.0 under Clinical Internship of the Rules and Regulations.

4.0 Structure and duration of posting

4.1 The parent institute shall decide on the institutions where the students will be posted for internship. However, students can be posted for internship only at those institutions approved by the Rehabilitation Council of India.

4.2 Students shall do internship at their parent institute for one semester and at an institute(s) outside the parent institute for one semester. Internship can be done at institutes like hospitals, special educational centres/schools, centres where clinical facilities for management of autism spectrum disorders, cochlear implantation, auditory verbal therapy, hearing aid services etc. are available. Centres which undertake empowering of mothers, centres for cerebral palsy, centres providing early identification and prevention programs, and centres for learning disability can be considered. Attempts must be made to provide clinical training to students in a variety of set ups.

4.3 It shall be mandatory to provide additional clinical training to students in such areas as management of neurologically afflicted persons, prevention and early intervention programs, community-based rehabilitation, occupational health programs, structural abnormalities related to speech and hearing, etc.

5.0 Mode of supervision during internship: Supervision should generally be provided by a speech-language pathologist and audiologist. However, in

institutes/centers where speech-language pathologists and audiologists are not available, supervision can be done by a specialist in allied areas like otolaryngology, neurology, mental health, pediatrics, among others.

6.0 Maintenance of records by students: Every student shall maintain records of the number of hours of clinical work as well as number of cases in different areas and institutions. This should be certified by the head of the institution or his/her nominee where the student is undergoing internship.

7.0 Attendance: Candidates should have an attendance of at least 90% during the internship period. Internship shall be extended by the number of days the student falls short of 90% attendance. Compensatory work for shortage of attendance must be completed before the final clinical exams of 8th semester.

8.0 Grading and evaluation of student: All internees will be assessed based on their attendance, performance during the postings and presentation of log books. Assessment shall be continuous throughout the internship period. The mode of assessment and frequency of assessment will be prescribed by the parent institute. The student is required to repeat those postings in which his/her performance is below 50% or as recommended by the supervisor at the participating institute.

10.0 Certification: The parent institute shall award a certificate after successful completion of the internship and clinical examination (7.1 & 7.2 in the scheme of examination). Supervised clinical hours spent during internship shall be included in the clinical competence certificate issued to students.

11.0 Award of degree: The University shall award the degree only after the successful completion of clinical internship and final clinical examination thereafter.

APPENDIX- IV

LOG SHEETS

Department of Audiology & Speech Language Pathology
Yenepoya Medical College Hospital, Deralakatte, Mangalore
Diagnostic Case Log Sheet

Name: **Year:** **Posting From:** **Posting To:**

Sl No:	Date	Case Name/No:	Age/Sex	Tests Done	Provisional Diagnosis	Duration	Signature

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DEPARTMENT OF AUDIOLOGY & SLP

YENEPOYA MEDICAL COLLEGE HOSPITAL, DERALAKATTE, MANGALORE

SPEECH THERAPEUTICS (Case Record Sheet)

Student name: Roll number:
Batch: Month:

LESSON PLAN

Sl. No	Name	Age / Gender	Hospital No	Diagnosis	Reports Submitted				No of Sessions	Staff signature
					PT	LP	PR	SR		

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Department of Audiology & Speech Language Pathology
Yenepoya Medical College Hospital, Deralakatte, Mangalore
Therapeutic Case Log Sheet

Name: **Year:** **Posting From:** **Posting To:**

Sl No:	Date	Case Name/No: Age/Sex	Provisional Diagnosis	Goals Taken	Supervisor	Duration	Signature

APPENDIX- V

Check list (OSCE)

Sl.No	Duration	Station Topic	Questions	Assessing pointer	Marks
1		Interpretation of audiogram *(Audiogram)*	What is the type and degree of hearing loss?	1 each	2
			What is the configuration of the audiogram?	Name	1
			Formula for PTA calculation	All frequencies are written correctly, formula (1 each)	2
			If the AC= 50dBHL; BC= 20dBHL; calculate the ABG	Formula, ABG value (1 each)	2
			If the PTA is 58dBHL and ABG is 8dBHL, what is the diagnosis?	Type and degree of HL (1.5 each)	3
2		Rinne Test *(Tuning fork & Examiner)*	Purpose	Purpose	1
			Instructions	Instructions	2
			Demonstration	Demonstration	2
			Interpretation	Interpretation	2
			Parts of Tuning fork	1 each	3
3		Case for diagnosis based on history: Meniere's Disease *(Case history proforma)*	Identify the disorder	Meniere's disease	2
			Factors considered for identification of disorder	Hearing loss, Tinnitus, Vertigo, Aural fullness (1 each)	4
			Audiometry findings	Unilateral rising (1 each)	2
			Weber test findings in the disorder	Lateralization to poorer ear	2
4		Speech Audiometry for PTA of 45dBHL	Presentation level for SRT	PTA+ 20dB	2
			Presentation level for SIS	SRT+40dB	2
			Correlation between SRT and PTA	+/-12dB	2
			Write 4 Kannada spondees	0.5 per spondee	2
			Write 4 Malayalam PB words	0.5 per PB word	2
5		VIVA		-	10
		TOTAL			50

Each station will be given a maximum mark of 10 and allotted timing will be 10 minutes.