BACHELOR OF AUDIOLOGY AND SPEECH –
LANGUAGE PATHOLOGY (BASLP)

SEMESTER SCHEME

REGULATIONS, NORMS, SCHEME OF EXAM
AND CURRICULUM

REHABILITATION COUNCIL OF INDIA
(Statutory body under Ministry of Social Justice & Empowerment)
B-22, Qutab Institutional Area, New Delhi – 110 075
E-mail: rehabstd@nde.vsnl.net.in
www.rehabcouncil.nic.in

2009
RULES REGULATIONS & NORMS FOR BASLP

1. Nomenclature:

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

2.1 Duration of the course:

The course shall be of 6 + 2 semesters: 6 semesters of coursework and 2 semesters of internship.

2.2 Each semester will be of a minimum period of 16 weeks, excluding examination duration.

2.3 As far as possible the First, Third & Fifth semesters of the BASLP course will commence, latest by, the last week of July each year. These semesters will end by the 4th week of December each year.

2.4 At the end of these semesters there shall be examinations, followed by 3 weeks of vacation for students.

2.5 Similarly, the Second, Fourth & Sixth semesters will commence in the last week of January and end in the 1st week of June each year

OR

2.3, 2.4 & 2.5 will be as per the rules of respective universities.

3.0 Eligibility for admission

a) The candidate applying for admission to BASLP course should have passed 10+2 examination or equivalent / two years of Pre-University/Pre-Degree examination conducted by the Pre University Board of Education of Government of respective State, and further,

b) The applicant/candidate should have studied:

Physics, Chemistry & Biology / Mathematics / Computer Science / Statistics / Electronics / Psychology

c) At the time of entry/admission to the first semester BASLP course the candidate should be of age 17 years or above OR as per rules of the respective universities with regard to the entry age.

d) Lateral entry to 2nd year of BASLP is permitted for candidates who meet the following criteria:
i) Successfully passed Diploma in Hearing-Language-Speech (DHLS) revised course from any RCI recognized training institute with Science background as specified under 3 (b)  

ii) Two years of work experience in the field.  

iii) A maximum of 3 seats can be admitted on merit basis as super numerary to total intake permitted by RCI and respective affiliating University. For candidates who have successfully passed the pre-revised DHLS course recognized by RCI with 2 years of work experience, 3 month short course approved by RCI and entrance test will be the requirement.

4.0 Coursework:

As given for each semester in the annexures.

5.0 Attendance:

Each candidate should put in at least 75% of attendance in Theory and Clinical Practicum respectively in each semester. Failure to put in/meet the required attendance by any student render him/her disqualified to appear in the University Semester exam. The candidate failing to put up the required attendance will have to repeat the course as per the university guidelines.

6.1 Criteria for passing:

Minimum marks required to pass in each Theory paper, in Internal Assessment & Clinical Practicum respectively, will be 40% and 50% in aggregate of all theory papers and practical clinical marks OR as per rules and guidelines of respective universities.

6.2 Question Paper Pattern:

Objective type questions and essay questions – in accordance with the specifications from the respective universities. Questions and marking should be according to specifications followed by respective affiliating university.

6.3 Grading:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 40 &lt; 50%</td>
<td>Pass Class</td>
</tr>
<tr>
<td>≥ 50 &lt; 60%</td>
<td>Second Class</td>
</tr>
<tr>
<td>≥ 60 &lt; 75%</td>
<td>First Class</td>
</tr>
<tr>
<td>75% and above</td>
<td>Distinction</td>
</tr>
</tbody>
</table>

OR

As per rules of the respective universities.
6.4 **Carry over passing:**

Each paper should be successfully completed within 3 successive attempts including the first one or as per the rules of the affiliating university.

Provision of grace marks and declaration of results to carried out based on rules and norms followed at respective universities.

7.0 **Internship:**

Internship of one academic year duration (10 months) will start after the candidate completes the required courses and appears for sixth semester.

8.0 **Award of Degree:**

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

9.0 **Norms for Minimum Infrastructural Facilities:**
<table>
<thead>
<tr>
<th>1. Faculty/Personnel</th>
<th>BASLP (20 seats)</th>
<th>BASLP (20 + 20 seats)</th>
<th>BASLP + MASLP (20 + 10 seats)</th>
<th>BASLP + MASLP/ M.Sc. (Aud.)/M.Sc. (SLP) (40 + 15 seats)</th>
<th>M.Sc (Aud.)/M.Sc. (SLP) as addition to BASLP (40 seats) and MASLP (15) with 10 seats for each specialized M.Sc</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Full time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td></td>
<td>1 Professor or 2 Readers</td>
<td>1 Professor or 3 Readers</td>
<td>1 Professor or 1 Reader in each PG specialization in addition to that given in Column 4</td>
</tr>
<tr>
<td>Reader or equivalent</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lecturer</td>
<td>3</td>
<td>3 + 1</td>
<td>5</td>
<td>6</td>
<td>+2 in addition to that given in Column 4</td>
</tr>
<tr>
<td>Speech Pathologist/Audiologist (Grade I) (Clinical Supervisor)</td>
<td>1</td>
<td>1 + 2</td>
<td>4</td>
<td>6</td>
<td>+2 in addition to that given in Column 4</td>
</tr>
<tr>
<td>Speech Pathologist/Audiologist (Grade II)</td>
<td>2</td>
<td>2 + 1</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Lecturer in Clinical Psychology – Part time</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>One Medical faculty as per requirement of the paper – Part time</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lecturer in Linguistics – part time</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Electronic Engineer</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ear Mould Technician</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Librarian/staff</td>
<td>1+1</td>
<td>1+1</td>
<td>1+1</td>
<td>1+1</td>
<td>1+1</td>
</tr>
<tr>
<td>b. Visiting faculty for Anatomy and Physiology</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTE:

1. Minimum of 2 faculty members in core areas will be required for giving recognition for the first year.
2. Before the commencement of second academic year one more lecturer must be appointed.

3. Before the commencement of third academic year one Reader must be appointed.

4. Only on completion of three batches of BASLP, an Institution becomes eligible to increase the intake provided infrastructure is increased as per laid down norms of RCI. Institute will be eligible to apply for starting MASLP course after the 1st batch of BASLP passes out, i.e; after 4 years of starting BASLP course subject to recommendation of Inspection Team/Visiting Expert.

5. In case of Professor not being available, 2 Readers are appointed to accommodate research guidance and administrative work.

6. All reservations in admission will apply as per Govt. rules for aided and Govt. institutions. The infrastructure will have to be enhanced as per the the seats getting increased under reservation policy.
<table>
<thead>
<tr>
<th>Designation</th>
<th>Qualification</th>
<th>Experience</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Essential</td>
<td>Desirable</td>
<td>Essential</td>
</tr>
<tr>
<td>Professor</td>
<td>Ph.D. (Sp &amp; Hg)</td>
<td>10 years teaching experience in the field</td>
<td></td>
</tr>
<tr>
<td>Reader/Associate Professor</td>
<td>Ph.D. (Sp &amp; Hg) or M.Sc. (Sp&amp;Hg) with equivalent work by publications and research</td>
<td>Ph.D. (Sp. &amp; Hg)</td>
<td>5 years of teaching / research/ clinical experience with graduate/ post graduate courses</td>
</tr>
<tr>
<td>Lecturer/Assistant Professor</td>
<td>M.Sc.(Sp&amp; Hg)</td>
<td>Ph.D. (Sp&amp; Hg)</td>
<td>2 years clinical / research experience</td>
</tr>
<tr>
<td>Speech Pathologist/Audiologist Grade I</td>
<td>M.Sc. (Sp&amp; Hg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Pathologist/Audiologist Grade II</td>
<td>B.Sc. (Sp&amp; Hg)</td>
<td>M.Sc. (Sp&amp; Hg)</td>
<td></td>
</tr>
</tbody>
</table>

9.1. **Clinical Facilities**

Facilities for diagnostic evaluation of speech, language, voice, hearing and associated disorders, both functional and organically based. Clients of all age groups with hearing impairment and clients with speech and language disorders.

Load and variety of clients should be commensurate with number of courses conducted and also to meet the clinical practicum requirement of each year of the course.

9.2. **Library Facilities:**

Library should accommodate at least, 30% of the institution’s students and staff total strength. Library should have internet and photocopying facilities.

a) **Reading room**: Two reading rooms should be there
   (i) Reference room with CBTIV and internet provisions
   (ii) General Reading room

b) **No. of books**: Books listed for each paper under “essential” should be available.
c) **No. of Journals:** There should be at least 5 most essential journals (2 each in Speech & Audiology and 1 general) for BASLP and 8 at MASLP levels (4 each for Speech & Audiology).

d) **Staff:**
   (i) Library and Information Officer – One No.

   *Qualifications: B.Lib with two years of experience in handling*
   technical library using Information Technology.

   (ii) Library Assistants: One

   *Qualifications: SSLC + Diploma in Library Sciences or SSLC + JOC in Library Sciences.*

All the facilities may be increased to meet the requirements in a phased manner.

9.3. **Audiovisual Instruments:** Appropriate instruments as per No. and level of course should be provided.

9.4. **SPACE:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Size (Sq. Ft.)</th>
<th>Graduate and PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Class Rooms</td>
<td>Size should be adequate to accommodate (9 sq. ft. per student)</td>
<td>Half the No. of total batches/course (Min. 2 class room)</td>
</tr>
<tr>
<td>b) Room for reception where patients are registered.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Room for case history, Speech Diagnostic Room and Interviews</td>
<td>(6 x 6)</td>
<td>With one PG course 12 and with each additional PG 2 extra</td>
</tr>
<tr>
<td>d) Speech Lab (Quiet Room) for diagnostic purposes.</td>
<td>(15 x 20)</td>
<td>1</td>
</tr>
</tbody>
</table>
e) Recording room (Sound proof)  (10 x 10)  1 1

f) Speech Therapy Rooms/ Cabins  (6 x 6)  12 *to accommodate 50% of the students)  12

g) - Single sound treated room.  
   - Two Room Audiometric suite with control and test room situation. (Sound Proof. ANSI 1977)  (10 x 18)  For 20 intake one room and for 40-two rooms  For each of PG program i.e., MASLP –one room extra

h) Room for hearing aid trial combination purpose. (10 x 15)  1 1+1

i) Earmould Lab  (15 x 20)  1 1

j) Staff Room  As per staff strength (min size 15x20)  1 -

k) Individual work space (with provision for storage facilities)  (10 x 10)  4 12

l) Hearing aid repair lab  (10 x 10)  1 1

m) Principal’s Office room  (12 x 16)  1 1

n) Sanitary facilities  As per requirement separate facilities for girl and boy students and staff

o) Hostels for Men and Women to accommodate at least 50% of the student population.

p) Administrative staff room.

9.5. Equipment (Minimum Requirement):

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Graduate</th>
<th>Graduate and PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>2 channel Diagnostic Audiometer with Accessories such as earphone, ear cushion combination with adjustable headband, B.C. vibrator, transducers like microphone and matching loud speakers</td>
<td>1</td>
<td>1+1 and for Audiology specialization course one extra</td>
</tr>
<tr>
<td>b)</td>
<td>Portable Audiometer with provision of A.C. and B.C. testing : desirable screening audiometer</td>
<td>1 for each batch</td>
<td>1 + 1</td>
</tr>
<tr>
<td>c)</td>
<td>Clinical Immittance Audiometer (Desk model) with accessories.</td>
<td>2 instruments essential preferably one with screening type for field work. For 40 – three are required</td>
<td>1 more for MASLP and extra one for M.Sc. (Audio.)</td>
</tr>
<tr>
<td>d)</td>
<td>Portable/Screening impedance, audiometer</td>
<td>1</td>
<td>1 + 2</td>
</tr>
<tr>
<td>e)</td>
<td>Clinical BSEAR</td>
<td>1</td>
<td>1 + 1 (For M.Sc. [Audio.] stacked ABR and VEMP) are additions</td>
</tr>
<tr>
<td>f)</td>
<td>Otoacoustic emission</td>
<td>1</td>
<td>1 more (one screening and two table models)</td>
</tr>
<tr>
<td>g)</td>
<td>Calibration equipment for AC, BC and free field (by possession or access)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h)</td>
<td>Different types of Hearing Aids of mild moderate and strong categories body level and ear level, canal and spectacle hearing aid (1 each), FM, Digital, Programmable aids, ILS Assistive listening devices.</td>
<td>A representative sample of hearing aids and assistive devices</td>
<td>Software programs for HAT</td>
</tr>
<tr>
<td>i)</td>
<td>IGO and HAT for hearing aid trial and making electroacoustic measurements.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>j)</td>
<td>Stop watch</td>
<td>2</td>
<td>2 more</td>
</tr>
<tr>
<td>k)</td>
<td>Oto scope</td>
<td>2</td>
<td>2 more</td>
</tr>
<tr>
<td>l)</td>
<td>Proformae</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>m)</td>
<td>Auditory training and Screening material</td>
<td>UV Labs for Soft mould for PG course</td>
<td></td>
</tr>
<tr>
<td>n)</td>
<td>Ear Mould Lab-fully equipped</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Speech Pathology**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Speech and Language Tests (Tests for differential diagnosis) (English and local language)</td>
</tr>
<tr>
<td>b)</td>
<td>Proformae</td>
</tr>
<tr>
<td>c)</td>
<td>Speech Therapy material (Indian, Language and English)</td>
</tr>
<tr>
<td>d)</td>
<td>Toys and Books</td>
</tr>
<tr>
<td>e)</td>
<td>Mirrors - size 2' x 3'</td>
</tr>
<tr>
<td>f)</td>
<td>Speech Trainer</td>
</tr>
<tr>
<td>g)</td>
<td>Portable and Digital tape recorders</td>
</tr>
<tr>
<td>h)</td>
<td>Hi-Fi Ampli Deck with speakers and good microphone</td>
</tr>
<tr>
<td>i)</td>
<td>Expirograph/Aerophone</td>
</tr>
<tr>
<td>j)</td>
<td>Computer PC-AT with VGA Color Monitor</td>
</tr>
<tr>
<td>k)</td>
<td>Software for diagnostic/therapeutic use</td>
</tr>
<tr>
<td>l)</td>
<td>Endostroboscope</td>
</tr>
<tr>
<td>m)</td>
<td>EGG</td>
</tr>
<tr>
<td>n)</td>
<td>Stop Watch</td>
</tr>
<tr>
<td>o)</td>
<td>Audio cassettes for training/CDs</td>
</tr>
<tr>
<td>p)</td>
<td>Pitch pipe</td>
</tr>
<tr>
<td>q)</td>
<td>Tongue depressors</td>
</tr>
</tbody>
</table>
10 Guidelines for implementation of internship for BASLP course with effect from academic session 2009-10 onwards

Objectives of Internship are to:

1. facilitate the transition of training from supervised to independent responsibility,

2. provide additional inputs to attain and maintain competence in clinical management of persons with communicative impairments,

3. 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

4. facilitate the understanding of professional responsibilities and ethical practices including:
   (i) Rights and dignity of patients.
   (ii) Consultation and referral to other professionals.
   (iii) Conduct and professional obligations to peers/patients/families and the community at large.

Guidelines

1. Internship is mandatory

2. Duration: One academic year (10 months)

3. Eligibility: Internship will start in the immediate academic year after the candidate completes the required courses and appeared for sixth semester/third year examinations.

4. Structure and duration of the postings:
   i) The place of postings of the students for internship will be decided by the respective institute conducting the course.
   ii) Students should spend minimum of 50% period of internship at parent institute and 50% period outside the parent institute like hospital set ups, educational set ups, special clinical facilities like ASD, cochlear implants, AVT, mother's training program, centres for CP, centres for LD. Exposure should be for those areas where limited exposure was provided in the parent institute.
   iii) During internship students should get additional training in the areas of neurological related problems, prevention and early intervention programmes, community based rehabilitation, occupational health programmes, structural abnormalities related to speech & hearing.

5. Mode of supervision during internship:
Supervision should generally be provided by a Speech Language Pathologist or Audiologist. Where this is not feasible, supervision can be done by a specialist from the allied areas in Medical Sciences like Otolaryngology, Neurology, Mental Health, Paediatrics, etc. Supervised clinical hours spent during internship can be included in the clinical competence certificates issued to students.

6. Maintenance of records by students:

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

7. Leave permitted: As per norms of the parent Institute.

8. Extension of internship: Internship shall be extended by the number of days the student remains absent unauthorisedly.

9. Stipend: As per the norms of the parent Institute.

10. Grading and evaluation of student:

Grading and evaluation should be done by the institute where the candidate is doing internship. The student is required to repeat those postings in which his/her performance is below 40%.

11. Certification:

The parent institute will award a certificate after successful completion of the internship.

12. The University shall award the degree certificate only after the successful completion of the internship.

13. The candidate failing in final semester/year exam will be exempted from the duration of Internship period which he/she has already completed till the date of declaration of results.
<table>
<thead>
<tr>
<th>CODES/PAPER NO.</th>
<th>PAPER TITLE</th>
<th>Teaching hours per week (minimum)</th>
<th>Total hours per semester (minimum)</th>
<th>Exam duration</th>
<th>Exam Marks</th>
<th>I.A. Marks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B 1.1</td>
<td><em>Introduction to Human Communication</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 1.2</td>
<td><em>Introduction to Hearing &amp; Hearing Sciences</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 1.3</td>
<td><em>Speech Language Diagnostics and Therapeutics</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 1.4</td>
<td><em>Basic Medical Sciences related to Speech &amp; Hearing</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 1.5</td>
<td><em>Clinical Practicum</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a)  <em>Speech-Language Pathology</em></td>
<td>12</td>
<td>192</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>b)  <em>Audiology</em></td>
<td>12</td>
<td>192</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>40</td>
<td>640</td>
<td>12</td>
<td>320</td>
<td>180</td>
<td>500</td>
</tr>
<tr>
<td>B 2.1</td>
<td><em>Speech - Language Development &amp; Disorders</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 2.2</td>
<td><em>Introduction to Audiology &amp; Auditory Tests</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 2.3</td>
<td>Psychology related to Speech &amp; Hearing</td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 2.4</td>
<td><em>Management of the Hearing Impaired</em></td>
<td>4</td>
<td>64</td>
<td>3</td>
<td>80</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>B 2.5</td>
<td><em>Clinical Practicum</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a)  <em>Speech-Language Pathology</em></td>
<td>12</td>
<td>192</td>
<td>-</td>
<td>25</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>b)  <em>Audiology</em></td>
<td>12</td>
<td>192</td>
<td>-</td>
<td>25</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>40</td>
<td>640</td>
<td>12</td>
<td>370</td>
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| B 3.5 | Clinical Practicum  
a) Speech-Language Pathology  
b) Audiology | 12 | 192 | - | - | 50 | 50 |
| TOTAL | | 40 | 640 | 12 | 320 | 180 | 500 |
| **B 3.6** | Indian Constitution | 4 | 64 | 3 | 80 | 20 | 100 |
| **B 3.6 is optional as per respective university & accurate to their prescribed paper content/course work** |
| B 4.1 | Voice & Laryngectomy | 4 | 64 | 3 | 80 | 20 | 100 |
| B 4.2 | Motor Speech Disorders in Children | 4 | 64 | 3 | 80 | 20 | 100 |
| B 4.3 | Diagnostic Audiology: Part 2 | 4 | 64 | 3 | 80 | 20 | 100 |
| B 4.4 | Paediatric Audiology | 4 | 64 | 3 | 80 | 20 | 100 |
| B 4.5 | Clinical Practicum  
a) Speech-Language Pathology  
b) Audiology | 12 | 192 | - | - | 50 | 50 |
| TOTAL | | 40 | 640 | 12 | 370 | 130 | 500 |
| **B 4.6** | Environmental Studies | 4 | 64 | 3 | 80 | 20 | 100 |
| **B 4.6 is optional as per respective university & accurate to their prescribed paper content/course work** |
| B 5.1. | Fluency & its Disorders | 4 | 64 | 3 | 80 | 20 | 100 |
| B 5.2 | Motor Speech Disorders in Adults | 4 | 64 | 3 | 80 | 20 | 100 |
| B 5.3 | Technology & Amplification Devices for persons with Hearing impairment | 4 | 64 | 3 | 80 | 20 | 100 |
| B 5.4 | Professional Practices in Speech, Language & Hearing including Community Work | 4 | 64 | 3 | 80 | 20 | 100 |
| B 5.5 | Clinical Practicum  
a) Speech-Language Pathology  
b) Audiology | 12 | 192 | - | - | 50 | 50 |
| TOTAL | | 40 | 640 | 12 | 320 | 180 | 500 |
| B 6.1. | Neurogenic Language Disorders In Adults | 4 | 64 | 3 | 80 | 20 | 100 |
| B 6.2 | Noise Measurements & Hearing Conservation | 4 | 64 | 3 | 80 | 20 | 100 |
| B 6.3 | Basic Statistics | 4 | 64 | 3 | 80 | 20 | 100 |
| B 6.4 | Scientific Enquiry in Audiology & Speech Language Pathology | 4 | 64 | 3 | 80 | 20 | 100 |
| B 6.5 | Clinical Practicum a) Speech-Language Pathology b) Audiology | 12 | 192 | - | 25 | 25 | 50 |
|        |                                      | 12 | 192 | - | 25 | 25 | 50 |
| TOTAL  |                                      | 40 | 640 | 12 | 370 | 130 | 500 |

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<th>GRAND TOTAL (FOR ALL SEMESTERS)</th>
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*Core Papers are highlighted in bold & italics
**Papers applicable only where affiliating Universities make it compulsory
SEMMESTER I
B 1.1 INTRODUCTION TO HUMAN COMMUNICATION

(80+20 marks) (Total = 64 hrs)

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

1. Human communication, process involved in communication
2. Interrelation between hearing, speech and language
3. The neurological, psychological, social and acoustic bases of communication

Unit 1 (12 hrs)

1. History and development of the profession of Speech-language pathology (SLP) specifically in India
   1. Major work activities of the SLP
   2. Various settings of service delivery
   3. Other professions concerned with communication disorders
   4. Human communication:
      Definition and components
      Interdependency & interrelation between communication, hearing, speech, and language.
      Function of communication, speech and language
      Modes of communication (Verbal & Non-verbal)
      Characteristics of good speech
   5. Interactive bases of human communication
      • genetic bases
      • psychological & cognitive bases
      • social bases
   6. Speech as an overlaid function
   7. Pre-requisites and factors affecting language and speech development

Unit 2 (14 hrs)

1. Nervous system:
   • Divisions and functions of the nervous system, nerve cell, receptors and synapse, types of nerve fibres. Peripheral nervous system. Brief description of spinal cord and CSF.
Structure of the brain and divisions: general and lobes of cerebrum. Reticular formation, Basal ganglia and cerebellum. Reflex action and common reflexes. Cranial nerves, distribution and supply with the special reference to II, V, VII, IX, X, XII. Nerve tracts (motor and sensory), Broadmann’s area, anatomy of the nervous system related to speech and language.

Unit 3

Mechanism of speech and language production- I
- Anatomy and physiology of respiratory system: Detailed study of trachea, larynx, oropharynx and nasopharynx.
- Respiration for life and speech
- Physiology: External and internal respiration. Mechanism of respiration-internal and external influence, nervous control, Lung volumes (vital capacity-tidal volume, residual air, artificial respiration.(in brief)

Unit 4

1. Basic Acoustics of speech:

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

Unit 5

Mechanism of speech and language production- III
- Anatomy and physiology of articulatory system
- Anatomy and physiology of resonatory system
LIST OF BOOKS

Compulsory Reading:


Additional / Optional Reading:


SEMESTER I
B 1.2: INTRODUCTION TO HEARING & HEARING SCIENCES

(80+20 marks) (Total = 64 hrs)

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

- Basic aspects of auditory system
- Physical and psychophysical basis of sound
- Tuning fork tests

Unit 1

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

(12 hrs)

Unit 2

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

(14 hrs)

Unit 3

- Sound Pressure, Power and Loudness. Physical and psychophysical scales, Equal loudness contours, Frequency weighting curves, combined sources, Pitch and Timbre. Physical and psychophysical scales. Fourier analysis of complex Tones
- dB concept: power and pressure formulae: zero dB reference for pressure and power calculation of actual SPL, reference and dB values with any to given values, calculation of overall dB when two signals are superimposed.

(14 hrs)
• Phones and Sones: relation between phones and sones; use of phone and sone; computation of relative loudness of two given sounds using these graphs. Frequency and intensity, their psychological correlates: dL for frequency and intensity

**Unit 4**

(12 hrs)

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

**Unit 5**

(12 hrs)

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

**LIST OF BOOKS**

**Compulsory Reading:**


Additional Reading:


2. Relevant BIS documents
SEMESTER I
B 1.3 SPEECH LANGUAGE DIAGNOSTICS AND THERAPEUTICS
(80+20 marks) (Total = 64 hrs)

Objectives

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

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

A. Speech language diagnostics

Unit 1 (12 hrs)

1. Case history – need for the case history – essential factors to be included in the case history form – comparison of adults vs. children case history – usefulness of the case history
2. Basic terminologies and concepts
   - Introduction to diagnostics
   - Terminologies in the diagnostic process
   - General principles of diagnosis
   - Diagnostic setup and tools

Unit 2 (14 hrs)

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

Unit 3 (12 hrs)

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

Unit 4 (14 hrs)

1. Procedures for speech-language therapy
   • Approaches to speech and language therapy – formal, informal and eclectic approaches
   • Types of speech and language therapy
   • Planning for speech and language therapy – goals, steps, procedures, activities
   • Techniques for:
     ➢ Speech and language therapy for various disorders of speech and language
     ➢ Importance of reinforcement principles and strategies in speech and language therapy, types and schedules of rewards and punishment

Unit 5 (12 hrs)

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

LIST OF BOOKS

Compulsory Reading:


Additional / Optional Reading:


SEMMETER I
B 1.4 BASIC MEDICAL SCIENCES RELATED TO
SPEECH & HEARING

(80+20 marks) (Total = 64 hrs)

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

- Basic anatomy and physiology related to speech and hearing
- Basic neurological, genetic issues related to speech and hearing
- General diseases/conditions related to speech and hearing disorders

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

- Basic anatomy and physiology related to speech and hearing
- Basic neurological, genetic issues related to speech and hearing
- General diseases/conditions related to speech and hearing disorders

PART A (UNIT 1) ANATOMY

Unit 1 (20 + 5 marks) (12 hrs)

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

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

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

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

(e) Respiratory system: General outline, detailed study of trachea, larynx and nasopharynx,

PART B (UNIT 2) PHYSIOLOGY

Unit 2 (20 + 5 marks) (14 hrs)
(a) Definition of inflammation, infection, tumor – benign & malignant, tissue healing.

(b) Mechanism of respiration – internal and external influence, nervous control – vital capacity – tidal volume, residual air, artificial respiration (in brief).

(c) Genetics : introduction – structure of DNA and RNA, karyotyping, family tree (pedigree chart), symbolic representation, inheritance, autosomal dominant, autosomal recessive, sex chromosomal disorders, structural aberrations, mutation (in brief).

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

**PART C (UNIT 3, 4, 5) ENT**

**Unit 3**

(40 + 10 marks) (14 hrs)

(a) Anatomy & Physiology of external, middle & inner ear, auditory pathways, vestibular pathway. Diseases of the external middle and inner ear leading to hearing loss: Congenital malformations, traumatic lesions, infections, management of middle ear and Eustachian tube disorders.

(b) Other causes of hearing loss – Facial paralysis, Tumors of the cerebello-pontine angle, Acoustic neuroma. Infection and management of inner ear diseases. Cochleo-vestibular diseases and its management.

**Unit 4**

(12 hrs)

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

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

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

**Unit 5**

(12 hrs)

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

(b) Congenital diseases of the larynx – difference between an infant and an adult larynx. Stridor – causes of infantile stridor. Disorders of structure –

**LIST OF BOOKS**

**Compulsory Reading:**


**Additional / Optional Reading:**


SEMESTER I
B 1.5 CLINICAL PRACTICUM-(a) Speech Language Pathology

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

1. Taking case history of a minimum of 10 individuals (5 normal & 5 clients with complaints of speech-language problems)

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

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

4. Analyze the following in normal subjects:
   - Pitch – normal / high / low
   - Loudness - normal / loud / soft
   - Quality – normal / hoarse / harsh / breathy / hyper - nasal / hypo –nasal
   - Rate of speech - normal / fast / slow
   - Articulation – normal / abnormal
   - Fluency – normal / abnormal
   - Intelligibility – using the AYJNIHH intelligibility rating scale

5. Use varying range of pitch and loudness
   - Measure F0, Vital capacity, phonation duration, rate of speech, Alternate Motion Rates and Sequential Motion Rates, s/z ratio in 5 normal individuals

6. Measure in 2 normal samples (with the help of video or live)
   - Mean Length of Utterance (MLU)
   - Syllable structure
   - Syntactic structures
   - Communication intent

7. Use proformae for the following disorders:
   - Articulation
   - Voice
   - Fluency
   - Cleft lip and palate
   - Child language assessment

8. Use scale / test for:
- Receptive language skills
- Expressive language skills

Receptive Expressive Emergent Language Scale (REELS)
3-Dimensional Language Acquisition Test (3DLAT)
Scales of Early Communication Skills for Hearing impaired children (SECS)
and Indian tests

Observation of a minimum of 5 diagnostic cases, 5 therapy cases

Writing of observation reports of the above

Maintenance of a clinical diary

Maintenance of a clinical work record to be submitted at the end of the term
SEMESTER I
B 1.5 CLINICAL PRACTICUM-(b) Audiology

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

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

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


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

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

6. Prepare 0 dB HL equivalent chart with different earphone/ear cushion combinations.
SEMMER II
B 2.1 SPEECH, LANGUAGE DEVELOPMENT AND DISORDERS

(80+20 marks)  (Total = 64 hrs)

Objectives
After studying this paper at the end of the semester, the student should be able to understand the following –
  • Development of speech & language
  • Identify different speech & language disorders
  • Basics of assessment and intervention for Child language disorders.

Unit 1  (14 hrs)
Development of speech and Language:
Development of language
Semantics: A brief introduction to different types of homonyms, synonyms and antonyms.
Morphology: Morpheme – bound and free, process of word formation, content and function words.
Syntax:; grammatical and syntactic categories, sentence types, Syntactic analysis.
Pragmatics: Introduction to verbal and non-verbal communication and other indicators, intent of communication.

Unit 2  (10 hrs)
Theories and models of language Acquisition – Behavioral, Nativistic, Cognitive, Linguistic, Pragmatic, Biological and Information processing model.
Developmental issues in communicative development – genetic, neurological, medical, behavioural, social and psychological.
Bilingualism / multilingualism in children; Bilingual Language learning contexts home and school situations, compound / coordinate context and others.

Unit 3  (12 hrs)
Definition, Etiology, Characteristics, Classification and Impact of
Hearing Impairment
Mental Retardation
Cerebral Palsy
Seizure disorders
Introduction to assessment procedures, differential diagnosis and management.
Unit 4 (12 hrs)

Definition, Etiology, Characteristics and classification of Autism Spectrum Disorders/Pervasive Developmental Disorders
Attention Deficit Disorder/ Attention Deficit Hyperactive Disorder

Introduction to assessment procedures, differential diagnosis and management.

Unit 5 (16 hrs)

Definition, Etiology, Characteristics, Classification and Impact of Specific Language Impairment
Learning Disability
Acquired aphasias in childhood
Traumatic Brain Injury
Multiple disabilities

Introduction to assessment procedures, differential diagnosis and management.

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:

7) Thirumalai M. S. Shyamala Chengappa (1988) Simultaneous Acquisition of two languages CIIL, Mysore


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

Unit 1:  
- Pure Tone audiometry: Need and scope  
- Instrumentation  
- Standards  
- Different types of transducers  
- Permissible ambient noise levels for audiometric testing  
- Calibration: Biological and instrumental for AC & BC transducers

Unit 2:  
- Classification of audiograms  
- Sound field & closed field testing  
- Factors affecting AC & BC testing  
- Screening Vs Diagnostic pure tone testing  
- Extended high frequency testing & its interpretation

Unit 3:  
- Masking: Definition, types of masking, types of noises, critical band concept,  
- Terminology related to masking: Test ear, non-test ear, masker, maskee, crossover, cross hearing and shadow curve  
- Interaural attenuation; Factors affecting IA; Criteria for masking during AC & BC  
- Factors determining amount of masking noise, AB gap in masked ear, masking dilemma in bilateral symmetrical conduction hearing loss.  
- Fusion Inferred Test (FIT)

Unit 4:  
- Orientation to speech audiometry  
- Need for speech audiometry  
- Speech recognition threshold, speech identification score, UCL, MCL, dynamic range, articulation index  
- Tests developed in India and abroad  
- Factors affecting speech audiometry  
- Limitations of speech audiometry  
- Masking for speech audiometry  
- PI-PB function
Unit 5: (12 hours)

- Acoustics of Rooms. Sound propagation in outdoors and indoors.
- Direct, early and reverberant sound. Calculation of reverberation time.
- Air absorption. Background noise.
- Loudspeaker placement and directivity.
- Sound images and multiple sources.
- Sound field in listening rooms. Quadraphonic sound.
- Listening with earphones. Pressure field, free field and diffused field.
- Audiometric test rooms – Basic requirements concept and structure – transmission loss,
- NRC rating – Standards for sound treated rooms – Basic requirements, concept and structure – standards.
- Classrooms of hearing impaired children – Basic requirements, concept and structure – standards.

LIST OF BOOKS

Compulsory Reading:


Additional Reading:


5. Relevant BIS documents
SEMESTER II
B 2.3 PSYCHOLOGY RELATED TO SPEECH AND HEARING

(80+20 marks) (64 hrs)

Objectives
After studying this paper at the end of the semester, the student should be able to understand the following –
• Developmental Psychology
• Psychology of learning
• Cognitive issues in the field of speech and hearing

Unit 1 (10 hrs)
Introduction to psychology- Definition, History and perspectives, Branches and scope, application of psychology in the field of speech and hearing.
Introduction to Clinical psychology – Definition, Perspectives and models of mental disorders

Unit 2 (14 hrs)
Psychology of learning – Introduction, Definition of learning, Theories of learning, Classical conditioning, Operant conditioning and Social learning.
Application of learning theories in the field of speech and hearing (therapeutic, educational and rehabilitative applications).

Unit 3 (14 hrs)
Cognitive Psychology – Introduction, Definition and theoretical perspectives (David Rumelhart and David Mc Clelland, Noam Chomsky, George miller, Allan Newell).
Applications of cognitive psychology in the field of speech and hearing.
Neuropsychology – Introduction, definition, principles of neuropsychological assessment, diagnosis and rehabilitation.
Applications of neuropsychology in the field of speech and hearing.

Unit 4 (12 hrs)
Psychodiagnostics – Case history taking, Mental status examination, behavioural analysis, psychological testing.
Counselling- Meaning and definition, types of counseling, Counseling in rehabilitation practice.

Unit 5 (14 hrs)
Developmental psychology:
Introduction, Definition, Principles, Motor development, Emotional development
Cognitive development- Definition, Piaget’s theory
Play as a therapeutic tool
Personality development- Introduction, Stages, Hazards

LIST OF BOOKS

Compulsory Reading:


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

Additional/Optional Reading:


SEMESTER II
B 2.4 MANAGEMENT OF THE HEARING IMPAIRED

(80+20 marks) (Total = 64 hrs)

Unit 1 (14 hrs)
- Definitions and goals of rehabilitation & aural rehabilitation
- Early identification and its importance in aural rehabilitation
- Unisensory Vs Multisensory approach
- Manual Vs oral form of communication for children with hearing impairment
- Total communication

Unit 2 (12 hrs)
- Methods of teaching language to the hearing impaired
  o Natural method
  o Structured method
  o Computer aided method

Unit 3 (14 hrs)
- Educational problems of children with hearing impairment in India
- Educational placement of hearing impaired children
- Criteria for recommending the various educational placements
- Factors affecting their outcome
- Counseling the parents and teachers regarding the education of the hearing handicapped
- Parent Infant Training Programme (PIP) & Mother’s Training Programme, Home training –need, preparation of lessons; correspondence programs (John Tracey Clinic, SKI-HI), follow up

Unit 4 (14 hrs)
- Introduction to hearing aid technology: Parts of hearing aids & its functions
- Type of hearing aids:
  - Body level Vs ear level
  - Monaural Vs Binaural Vs Pseudobinaural
  - Directional hearing aids Vs modular hearing aids
- Classroom amplification devices; Group amplification systems– hard wired, induction loop, FM, infrared rays.
- Setting up class rooms for the hearing handicapped
- Classroom acoustics preferential seating and adequate illumination
Unit 5 (10 hrs)

- Ear moulds: Importance, types (hard, soft), procedure of making each type of ear mould, styles of ear moulds, criteria for selection of one style over the other, ear mould modifications, EAC of hearing aid along with ear mould.

- Importance of counseling for users & parents – importance of harness, BTE loops. Tips to facilitate acceptance of hearing aids, battery life, battery charger. Counseling for geriatric population, Trouble shooting of hearing aids

LIST OF BOOKS

Compulsory Reading:


Additional Reading:


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


SEMESTER II
B 2.5 CLINICAL PRACTICUM (a) Speech Language Pathology

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

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

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

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

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

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

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

7) Writing of observation reports of the above

8) Maintenance of a clinical diary

9) Maintenance of a clinical work record to be submitted at the end of the term
SEMESTER II
B 2.5 CLINICAL PRACTICUM - (b) Audiology

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

1. Public information materials (videos, pamphlets, booklets etc.)
2. Taking case histories of 10 adults and 10 children with normal hearing & with hearing impairment under supervision.
4. Undergo pure-tone audiometry. Become familiar with different types of sound stimuli used for assessment of hearing and sound generator softwares.
5. Identify the different types of audiometers (at least 1 portable & 1 diagnostic) and their accessories referring to their respective manuals. Get familiar with the various parts of audiometers and their functions. Carry out listening checks of audiometers. Trouble-shoot audiometers. List the different earphone/ear cushion combination, BC vibrator, study the same and report the status of the same.
6. Prepare 0 dB HL equivalent chart with different earphone/ear cushion combinations.
7. Obtain audiograms of 10 normal subjects.
8. Observe /participate during audiological evaluation on a variety of cases under supervision. Plot audiograms, calculate inter-aural attenuation, occlusion effect.
10. Obtain audiograms with masking (5 cases)
11. Classify audiograms as per:
    - Nature of hearing loss
    - Degree of hearing loss
    - Configuration of hearing loss
12. Observe calibration of audiometers (Demonstration) – AC/BC/Sound field, instruments used, identifying the instruments, combination of equipments for different types of calibration, preparing correction charts.
SEMESTER II
B 2.6: COMPUTER FUNDAMENTALS

(80+20 marks)                          (Total = 64 hrs)

Unit 1:                                  (8 hrs)

General features of a computer. Generation of computers. Personal computer, Desktop and laptop workstation, mainframe computer and super computers. Computer applications – signal processing, data processing, information processing, commercial, office automation, industry and engineering, healthcare, education, graphics and multimedia

Unit 2:                                  (10 hrs)

Computer Organization, Central processing unit, Computer memory, primary memory and secondary memory. Secondary storage devices – magnetic semiconductor and optical media. Input and output units. OMR, OCR, MICR, scanner, mouse, Modem.

Unit 3:                                  (12 hrs)


Unit 4:                                  (10 hrs)

Word processing and electronic spread sheet. An overview of MS-WORD, MS-EXCEL and MS-POWERPOINT (image, file formats, audio and video file formats, print file formats). Elements of Basic programming. Simple Illustrations.

Unit 5:                                  (10 hrs)


List of practical assignments (12 sessions of 2 hours each)
System use, keyboard, mouse operations. Word pad and paint brush, creating a folder and saving a document – two sessions
Simple MS-DOS commands – One session
Windows operating system - icons, menus and sub menus, my computer - sharing of files and folders – two sessions
Desktop publishing – preparation of a document using MS.WORD - Two sessions
Installation of a software ,virus scanning – illustration. One session.
Spreadsheet calculation using MS EXCEL .One session.
BASIC programming – illustrations – One session.
Internet use. Surfing, browsing ,search engines ,E-mail. Two sessions

LIST OF BOOKS

   Leon Techworld Pub.
6. Alexis Leon: Computers for everyone. Vikas, UBS.
SEMESTER III
B 3.1 ARTICULATION AND PHONOLOGICAL DISORDERS

(80+20 marks)                                                             (Total = 64 hrs)

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

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

Unit 1 (12 hrs)

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

Unit 2 (14 hrs)

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

Unit 3 (12 hrs)

1. Factors related to articulation and phonological disorders:
   - Structural
   - Cognitive – Linguistic
   - Neurological
   - Psychosocial
   - Social
   - Metalinguistic

Unit 4 (12 hrs)

1. Assessment procedures: Types of assessment, sampling procedures, scoring procedures, criteria for selection of assessment instruments
2. Assessment of Oral peripheral mechanism
4. Analysis and interpretation of data:
   • Intelligibility and severity judgements
   • Normative data
   • Error patterns.

5. Characteristics of disordered phonology and differential diagnosis

Unit 5 (14 hrs)

1. Intervention: Stages of treatment and measuring improvement, long term goals, short term goals and activities for achieving goals in cases with misarticulation.
2. Issues in maintenance and generalization.
3. Team approach and professional communication (inter, intra professional and client oriented)
5. Computerized intervention packages, metaphon therapy

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:

SEMMESTER III
B 3.2 MAXILLOFACIAL ANOMALIES

(80+20 marks)                          (Total = 64 hrs)

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

- Identification of orofacial anomalies, and their effect on speech and other functions
- Effectiveness of Velopharyngeal closure and dysfunction
- Assessment and management

CLEFT LIP AND PALATE

Unit 1                                       (12 hrs)
1. Etiological factors
2. Embryology of the Face and Palate
3. Types of Cleft lip and Palate
4. Classification systems
5. Syndromes

Unit 2                                       (14 hrs)
1. Velopharyngeal mechanism- muscles and function; inadequacy, incompetency and insufficiency
2. Speech and Language problems of individuals with Cleft
3. Associated problems of individuals with Cleft

Unit 3                                       (12 hrs)
1. Diagnostic procedures and Instruments used in Assessment of speech in Cleft palate
2. Team Management: Composition, responsibilities and co-ordinator

Unit 4                                       (14 hrs)
1. Treatment concepts
2. Treatment procedures for speech
3. Prosthetic speech appliances for patients with Cleft palate
GLOSSECTOMY and MANDIBULECTOMY

Unit 5 (12 hrs)

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

LIST OF BOOKS

Compulsory Reading:


Additional / Optional Reading:


SEMESTER III

B 3.3 DIAGNOSTIC AUDIOLOGY: Part 1

(80+20 marks) (Total = 64 hrs)

Unit 1: 
(12 hrs)

Introduction to diagnostic audiology
   a) Need for test battery approach in auditory diagnosis and integration of results of audiological tests.
   b) Indications for administering audiological tests to identify:
      - Cochlear pathology
      - Retrocochlear pathology
      - Functional hearing loss
      - Central auditory processing disorders

Unit 2 
(12 hrs)

Tests to differentiate between cochlear and retrocochlear pathology
   a) ABLB, MLB
   b) SISI
   c) Tests for adaptation
   d) Bekesy Audiometry
   e) Brief tone audiometry
   f) PIPB function

Unit 3 
(12 hrs)

Tests to detect pseudohypoacusis
   a) Pure tone tests including tone in noise test, Stenger test
   b) Speech tests including yes & no
   c) Lombard test, Stenger test, lip-reading test, Doefler-Stewert test.
   d) Identification of functional hearing loss in children

Unit 4 
(16 hrs)

Tests to detect central Auditory Disorders
   a) Monoaural low redundancy tests
      - Filtered speech tests
      - Time compressed speech test
      - Speech-in-noise test
      - SSI with ICM
      - Other monaural low redundancy tests
   b) Dichotic speech tests
      - Dichotic digit test
      - Staggered spondaic word test
      - Dichotic CV test
      - SSI with CCM
• Competing sentence test
• Other dichotic speech tests

c) Binaural interaction tests
• RASP
• BFT (Binaural Fusion Test)
• MLD
• Other binaural interaction tests

d) Temporal ordering tasks
• Pitch pattern test
• Duration pattern tests
• Other temporal ordering tests

Unit 5 (12 hrs)

a) Variables influencing central auditory assessment
• Procedural variables
• Subject variables

b) Test findings in subjects with central auditory disorders
• Brainstem lesion
• Cortical and hemispheric lesion
• Interhemispheric dysfunction
• CAPD in children
• CAPD in elderly

LIST OF BOOKS

Compulsory Reading:


Additional Reading:


SEMESTER III  
B 3.4 REHABILATIVE AUDIOLOGY  
(80+20 marks)                                                             (Total = 64 hrs)  

Unit 1 (10 hrs)  
1. Speech reading  
   (a) Definitions  
   (b) Need  
   (c) Visibility of speech sounds – audio visual perception vs. visual perception  
   (d) Visual perception of speech by the hard of hearing  
   (e) Tests for speech reading ability, including Indian tests  
   (f) Speech reading activities  

2. Factors influencing speech reading  
   (a) Methods of training: analytical vs. synthetic; (including speech tracking)  
   (b) Individual and group training  

Unit 2 (16 hrs)  
1. Auditory learning  
   (a) Definition and historical background  
   (b) Role of audition in speech and language development in normal children and its application in education of the hearing impaired.  
   (c) Factors in auditory training: motivation of the case, intelligence, age, knowledge of progress, etc.  
   (d) Auditory Verbal Therapy  
   (e) Methods of auditory training  
   (f) Auditory training activities  
   (g) Communicative strategies  
   (h) Individual vs. group auditory training  

Unit 3 (10 hrs)  
Management of hearing impaired individuals with special needs  
   (a) Management of multiple handicapped hearing impaired children (MHHI)  
   (b) Management of children with central auditory processing problems  
   (c) Rehabilitation of hearing impaired – elderly population  

Unit 4 (12 hrs)  
Assistive Listening Devices (ALDs)  
- Classification based on auditory, visual & tactile stimulation  
- Classification based on alerting devices Vs devices for speech perception.  
- Selection of ALDs.  

Unit 5 (16 hrs)  
1. Implantable Devices  
   - Middle Ear Implants and BAHA (Bone Anchored Hearing Aid)  
   - Cochlear Implants  
   - Brainstem Implants  
   Components, Candidacy, Advantages and Complications of the same.  

2. Utility of technology/devices in the management of tinnitus, hyperacusis.
LIST OF BOOKS

Compulsory Reading:


Additional Reading:


BIS, ANSI & IEC Specifications
SEMINER III  
B 3.5 CLINICAL PRACTICUM (a) Speech – Language Pathology

At the end of Semester III, the student should be able to carry out the following –
1. Carry out informal and formal assessment procedures for the following aspects of 
speech and language (from a normal child sample)
   i) Pre-linguistic skills
      Non-verbal communication
      Child directed speech
   
   ii) Semantics
      Syntax and morphology
      Pragmatics
   
   iii) Phonological process and its analysis
      Speech intelligibility
      Transcription of the sample in IPA should be done.

2. Use scales / tests for evaluation and treatment of Childhood communication 
disorders, Articulation and Phonological Disorders, Maxillofacial anomalies:
   • Northwest Syntax Screening Test
   • Bankson’s Language Screening Test
   • Test for Examining Expressive Morphology
   • Autistic Behaviour Composite Checklist and Profile
   • Linguistic Profile Test
   • Tests for learning Disability
   • Screening Test for Developmental Apraxia of Speech
   • Articulation assessment tests in different Indian languages
   • Other Indian tests and materials available

3. 
   i) Perceptual analysis of 5 normal and 5 abnormal articulation samples
   ii) Analysis and marking of cleft
   iii) Nasalence measurements in normal and cleft palate speech

4. Planning and executing therapy for a minimum of 5 clients (including children and 
   adults with articulation disorders, cleft palate, glossectomy, mandibulectomy) for 
   approximately 5 sessions each and preparation of the following:
   • Carry out baseline evaluation
   • Preparation of pre therapy reports
   • Provide guidelines for home-based intervention in the form of home training 
     programs/modules for the above mentioned disorders
Making appropriate referrals and preparing sample referral letters to various professionals connected with the above mentioned disorders
Know various centers available for rehabilitation (local, national, international)

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

6. Maintaining audio samples used for the practical analysis

7. Maintaining clinical dairy.
At the end of Semester III, the student should be exposed to and be able to carry out the following:

1. Be familiar with instrumentation for speech audiometry, immittance audiometry, sound field-testing.

2. Carry out complete pure tone audiometry (with AC/BC, unmasked/masked), interpretation of audiograms, identifying indicators for special/further diagnostic testing, writing case review (25 cases)

3. Speech Audiometry: Be familiar with speech test material in at least two Indian languages, master live voice presentation and recorded test presentation, administer SAT, SRT, SIS, MCL, UCL, PI-PB function test.

4. Collect speech audiometry test materials in Indian languages.

5. Carry out speech audiometry on 10 normal subjects, and 20 cases with conductive hearing loss, sensorineural hearing loss and functional hearing loss. Interpretation of speech audiometry results.

6. Carry out holistic audiological assessment for differential diagnosis (Cochlear & Retro cochlear):
   - Routine pure tone & speech audiometry
   - Administering special tests using pure tone: Tone Decay Test, STAT, SISI, ABLB, MLB, SPAR, Test for functional hearing loss.

Educational Audiology

1. Note the speech and language characteristics of those with hearing impairment

2. Management of individuals with post-lingual hearing impairment

3. Role-play activities for teaching language to the hearing impaired.

4. Prepare schedules for educational placement of 5 hearing impaired children having different hearing capacities.

5. Counsel parents regarding educational placement of the hearing impaired.
SEMESTER III
B 3.6 INDIAN CONSTITUTION

(80+20 marks) (Total = 64 hrs)

(Syllabus for compulsory paper for all undergraduate degree courses in III semester)

Unit 1: Indian Constitution: Its Philosophy and Framing
  • The constituent Assembly
  • Preamble, Fundamental Rights and Fundamental Duties
  • Directive Principles of State Policy
  • Amendment and Review of the Constitution

Unit 2: The Union & State Legislature
  • Union Parliament
  • State Legislature
  • Law-making process
  • Committee System

Unit 3: The Union & State Executive
  • The President of India
  • The Prime minister and Council of Ministers
  • The State Governor, Chief Minister and Council of Ministers
  • Coalition Government

Unit 4: The Judiciary
  • The Supreme Court of India
  • Judicial Review
  • Writs
  • Judicial Activism and Public Interest Litigation

Unit 5: Issues
  • Indian Federalism
  • Human Rights and Environmental Protection
  • Reservation and Social Justice
  • Secularism

LIST OF BOOKS

1. D.D. Basu : Introduction to the Constitution of India
2. Granville Austin : India’s Constitution – Cornerstone of a Nation
3. Granville Austin : Working of a Democratic Constitution - The Indian Experience
5. J.R. Siwach : Dynamics of Indian Government & Politics
7. M.V. Pylee : India’s Constitution
8. H.M. Rajasekhar : Bharatha Sarkara mattu Rajkiya
9. M.P. Bhuvaneshwara Prasad : Bharathiya Samvidhana Parichaya
10. S.K. Kabburi : Bharata Samvidhana
11. K.J. Suresh : Bharata Samvidhana
13. Lohitashwa : Bharata Samvidhana
SEMESTER IV
B.4.1 VOICE AND LARYNGECTOMY

(80+20 marks) (Total = 64 hrs)

Objectives:
After studying this paper at the end of the semester, the student should be able to understand the following –
- Characteristics of voice and its disorders
- Laryngeal abnormalities
- Assessment and Management

Unit 1 (14 hrs)

1. Characteristics of normal voice: Physiological, acoustical and aerodynamic correlates
2. Development: Birth to senescence; including age-related changes
3. Theories of phonation
4. Classification of abnormal voice
5. Voice disorders in other conditions:
   - Voice disorders related to resonatory problems
   - Voice problems in conditions like Cerebral palsy, Hearing impaired, mentally retarded, Cleft lip and palate
   - Voice problems in Endocrine disorders

Unit 2 (12 hrs)

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

Unit 3 (12 hrs)

1. Evaluative procedures and Instrumentation for:
   - Invasive procedures – endoscopic procedures
   - Non-invasive (Acoustic, perceptual, aerodynamic, Electro Glotto Gram, Inverse filtering procedures)
2. Comparison of normal and abnormal voice patterns based on the above procedures

Unit 4 (14 hrs)

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

Unit 5 (12 hrs)

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

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:


SEMESTER IV
B 4.2 MOTOR SPEECH DISORDERS IN CHILDREN

(80+20 marks)                                                            (Total = 64 hrs)

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

• Characteristics of motor speech disorders
• Types of Cerebral palsy, Apraxia and other conditions
• Assessment and Management

Unit 1 (12 hrs)

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

Unit 2 (12hrs)

1. Cerebral palsy
   • Definition, causes and classification
   • Neuromuscular development in normals and children with cerebral palsy
   • Reflex profile
   • Associated problems
   • Speech and language problems of children with cerebral palsy
   • Assessment of speech in children with cerebral palsy- objective and subjective methods
   • Differential diagnosis of cerebral palsy
   • Management: Introduction to different approaches to neuromuscular education (Bobath, Phelps and the others); Speech rehabilitation in cerebral palsy- Verbal approaches: vegetative exercises, oral sensorimotor facilitation techniques, compensatory techniques- correction of respiratory, phonatory, resonatory and articulatory errors; Team approach to rehabilitation; Neurosurgical techniques for cerebral palsy
Unit 3

(12 hrs)

1. Different types of Cerebral palsy:
   - Disorders of muscle tone: Spasticity, rigidity, flaccidity, atonia
   - Disorders of movement: Hyperkinesias and dyskinesias - Ballismus, tremor, tic disorder, myoclonus, athetosis, chorea, dystonia, hypokinesias
   - Disorders of coordination - Ataxia

2. Syndromes with motor speech disorders - Examples:
   - Juvenile progressive bulbar palsy
   - Congenital supranuclear palsy
   - Guillain- Barre syndrome
   - Duchenne muscular dystrophy

Unit 4

(14 hrs)

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

Unit 5

(14 hrs)

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

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:


SEMESTER IV
B 4.3 DIAGNOSTIC AUDIOLOGY: Part 2
(80+20 marks)                                                            (Total = 64 hrs)

Unit 1
(14 hrs)
Imittance evaluation
a) Introduction
b) Principle of immittance evaluation, Instrumentation
c) Tympanometry – tynapnometric peak pressure, Static immittance, gradient/tympanometric width
d) Reflexometry - Ipsilateral and contralateral acoustic reflexes, special tests
e) Clinical application of immittance evaluation
f) Imittance evaluation in the paediatric population

Unit 2
(14 hrs)
Auditory brainstem response
a) Introduction and classification of AEPs including ASSR (80 Hz)
b) Instrumentation
c) Test procedure
d) Factors affecting auditory brainstem responses
e) Interpretation of results and clinical application
f) ASSR, Tone burst ABR

Unit 3
(14 hrs)
Middle and long latency auditory evoked potentials
a) Test procedure for MLR, LLR, MMN, P 300, ASSR (40 Hz)
b) Factors affecting middle, long latency evoked potentials (including MMN & P300)
c) Interpretation of results and clinical application

Unit 4
(10 hrs)
Otoacoustic emissions
a) Introduction and classification of OAEs
b) Instrumentation
c) Measurement of OAE procedure
d) Interpretation of results and clinical application

Unit 5
(12 hrs)
Electronystagmography
a) Introduction and need for electronystagmography
b) Subtests in electronystagmography
c) Interpretation of test results and clinical applications
d) Findings in the paediatric population

Other vestibular tests

a) VEMP
b) EMG
c) Glycerol test etc.

LIST OF BOOKS

Compulsory Reading:


Additional Reading:

SEMESTER IV
B 4.4 PEDIATRIC AUDIOLOGY

(80+20 marks) (Total = 64 hrs)

Unit 1 (12 hrs)

a) Development of human auditory system
   Basic embryology
   Embryology of the auditory system
   Relevance of the information with special reference to syndromes

b) Development of auditory behaviour
   Prenatal hearing
   New born hearing
   Auditory development from 0-2 years

Unit 2 (14 hrs)

a) Early identification of hearing loss – need with specific reference to conductive
   and sensorineural hearing loss.

b) Screening for hearing loss using high risk registers

c) Behavioural screening tests: Stimuli, procedures, recording of response,
   interpretation of results and validation of results

d) Concept of universal hearing screening

Unit 3 (12 hrs)

a) Objective screening tests: Immittance, Evoked potentials, OAE,

b) School Screening – Objective: Screening for hearing sensitivity, screening for
   middle ear effusion. Need, criteria, instrumentation.

c) Individual and group screening / Mass media screening tests

d) Importance of follow-up.

Unit 4 (16 hrs)

a) Hearing testing in neonates and infants:
   Behavioural Observation Audiometry (BOA)
   Conditioning techniques including CORA, VRA and its modifications,
   TROCA, Play audiometry.

b) Speech Audiometry in children
   Tests & material used to obtain:
   Speech Detection Threshold (SDT)
   Speech Recognition Threshold (SRT)
Speech recognition tests including VASC, WIPI, NuChip, Glendonald Auditory Screening Procedure (GASP), Early Speech Perception Test (EST), Speech tests developed in India.

Factors affecting speech audiometry results in children

BC speech audiometry

**Unit 5**

(10 hrs)

Functional hearing loss in children

Signs/symptoms

Tests

b) Central Auditory Processing Disorders in children

Signs/symptoms

Screening tests

**LIST OF BOOKS**

Compulsory Reading:


Additional Reading:


SEMESTER IV
B 4.5 CLINICAL PRACTICUM (a) Speech – Language Pathology

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

Carry out informal and formal assessment procedures for the following aspects of speech in 10 clients with voice disorders, laryngectomy, cerebral palsy and developmental apraxia of speech

i) Perceptual analysis of pitch, loudness and quality of voice

ii) Instrumental analysis of voice – F0 and related measures, amplitude and related measures, CTAS, EGG, maximum phonation duration, s/z ratio, vital capacity, mean airflow rate, analysis and professional voice

iii) Diagnosis of voice disorders

iv) Proformae for cerebral palsy, diagnosis of cerebral palsy

v) Analysis of developmental apraxia of speech

vi) Planning, writing and executing therapy in 5 cases with voice disorders, laryngectomy, cerebral palsy and developmental apraxia of speech

vii) Counseling in the above speech disorders

viii) Record maintenance
SEMESTER IV
B 4.5 CLINICAL PARACTICUM (b) Audiology

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

1. Be familiar with instrumentation for speech audiometry, immittance audiometry, sound field-testing.

2. Carryout complete pure tone audiometry (with AC/BC, unmasked/masked), interpretation of audiograms, identifying indicators for special/further diagnostic testing, writing case review (25 cases)

3. Speech Audiometry: Be familiar with speech test material in at least two Indian languages, master live voice presentation and recorded test presentation, administer SAT, SRT, SIS, MCL, UCL, PI-PB function test.

4. Collect speech audiometry test materials in Indian languages.

5. Carryout speech audiometry on 10 normal subjects, and 20 cases with conductive hearing loss, sensorineural hearing loss and functional hearing loss. Interpretation of speech audiometry results.

6. Carryout holistic audiological assessment for differential diagnosis (Cochlear & Retro cochlear)

7. Routine pure tone & speech audiometry


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

10. Carry out Auditory Brainstem Response (ABR) & Oto-Acoustic Emissions (OAE) –
    - Preparation of the patient
    - Informing the patient/caregiver with respect to the procedure
    - Electrode montage
    - Conduct the procedure with respect to test protocol (5 cases each)
    - BC-ABR, Tone burst ABR
**Educational Audiology**

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

**Paediatric Audiology**

1. Informal screening – purpose, materials used, noise makers, their spectral characteristics, procedure (5 normal & 5 hearing impaired children).
2. Sound field testing: BOA, VRA, Play audiometry (5 cases each).
3. Observe auditory response based on video clippings or live case testing.

**LIST OF BOOKS**

**Compulsory Reading:**


**Additional Readings:**


SEMESTER IV
B 4.6 ENVIRONMENTAL STUDIES
(80+20 marks)                                                            (Total = 64 hrs)

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

Unit 2: 8 hrs
Natural Resources
Renewable and non-renewable resources
Natural resources and associated problems

Forest resources: Use and over-exploitation, deforestation, case studies. Timber
extraction, mining, dams and their effects on forests and tribal people.

Water resources: Use and over-utilization of surface and ground water, floods,
drought, conflicts over water, dams’ benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and
using mineral resources, case studies.

Food resources: World food problems, changes caused by agriculture and
overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water
logging, salinity, case studies.

Energy resources: Growing energy needs, renewable and non-renewable energy
sources, use of alternate energy sources, Case studies.

Land resources: Land as a resource, land degradation, man induced landslides, soil
erosion and desertification

Role of an individual in conservation of natural resources
Equitable use of resources for sustainable lifestyles

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

Unit 4: 8 hrs

Biodiversity and its conservation
Introduction – Definition, genetic, species and ecosystem diversity
Biogeographical classification of India
Value of biodiversity: consumptive use, productive use, social, ethical, esthetic and option values
Biodiversity at global, national and local levels
India as a mega diversity nation
Hot-spots of biodiversity
Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
Endangered and endemic species of India
Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity

Unit 5: 8 hrs

Environmental Pollution
Definition
Causes, effects and control measures of:-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards

Solid waste management: causes, effects and control measures of urban and industrial wastes
Role of an individual in prevention of pollution
Pollution case studies
Disaster management: floods, earthquakes, cyclone and landslides

Unit 6: 7 hrs

Social issues and the environment
From unsustainable to sustainable development
Urban problems related to energy
Water conservation, rain water harvesting, watershed management
Resettlement and rehabilitation of people, its problems and concerns, case studies
Environment ethics, issues and possible solutions
Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies
Wasteland reclamation
Environment Protection Act
Air (Prevention and Control of Pollution) Act.
Water (Prevention and control of pollution) Act
Wild life protection Act
Forest conservation Act
Issues involved in enforcement of environment legislation
Public awareness

Unit 7: 6 hrs
Human population and the Environment
Population growth, variation among nations
Population explosion, family welfare programme
Environment and human health
Human rights
Value education
HIV/AIDS
Women and child welfare
Role of information technology in environment and human health
Case studies

Unit 8: 19 hrs
Field Work
Visit to local area to document environmental assets- river/forest/grassland/hill/mountain
Visit to local polluted site urban/rural/industrial/agricultural
Study of common plants, insects, birds
Study of simple ecosystems pond, river, hill slopes etc. (field work equal to 5 lecture hours)
Each student has to submit a field report on any one of above topics which forms the basis for evaluation of field work for – 25 marks

LIST OF BOOKS


Bharucha Erach. The Biodiversity of India, Mapin Publishing Pvt. Ltd, Ahmedabad – 380 013, India email: mapin@iccnel.net (R)

Brunner R.C 1989, Hazardous Waste

Cark R.S Marine Pollution, Clanderson Press Oxford (TB)


De A.K. Environmental Chemistry, Wiley Eastern Ltd

Down to Earth, Centre for Science and Environment (R)

Hawkins R.E, Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)


Mhaskar A.K, Matter Hazardous, Techno-Science Publication (TB)


Odum, E.P 1971. Fundamentals of Ecology, W.B. Saunders Co. USA,574p


Survey of the Environment. The Hindu (M)
(80+20 marks) (Total = 64 hrs)

Objectives:
After studying this paper at the end of the semester, the student should be able to understand the following –
- Characteristics and types of Fluency disorders
- Theories of stuttering
- Assessment and Management

Unit 1 (10 hrs)
1. Fluency: Definition, disfluencies and dysfluencies, review of development of fluency, factors influencing the development
2. Definitions of intonation, stress and rhythm- Development of intonation, rhythm, stress – their implications to therapy
3. Measures of fluency and other prosodic aspects

Unit 2 (12 hrs)
1. Stuttering: definition, nature, incidence and prevalence
2. Normal non fluency; primary stuttering; secondary stuttering
3. Development of stuttering
4. Cluttering and neurogenic stuttering

Unit 3 (12 hrs)
Theories of stuttering: organic vs. functional; cerebral dominance; diagnosogenic and learning theories; demand-capacity model

Unit 4 (14 hrs)
1. Assessment of stuttering: Clinical observation, subjective and objective assessment, administration of tests, recording, transcription, analysis and diagnosis.
2. Associated problems: speech and language, psychological etc.
3. Differential diagnosis of developmental stuttering, neurogenic stuttering, cluttering, normal non fluency, spasmodic dysphonia

Unit 5 (16 hrs)
2. Therapy; rationale; prolongation; shadowing; habit rehearsal technique, DAF, masking, shock therapy, desensitization, timeout, airflow and modified airflow technique; sequence of therapy procedures
3. MIDVAS
4. Transfer and maintenance
5. Measurement of progress; naturalness rating
6. Relapse and recovery

LIST OF BOOKS

Compulsory Reading:


Peter and Guitar (1991). Stuttering- An integrated approach to its nature and treatment

Additional/Optional Reading:


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

- Characteristics and types of dysarthria and apraxia in adults
- Dysphagia and other neurogenic conditions
- Assessment and Management

Unit 1
1. Definition and classification of dysarthria in adults.
2. Types of dysarthria in adults.
3. Neurogenic disorders learning to dysarthria in adults:
   - Vascular disorders – dysarthria following strokes, CVA, cranial nerve palsies and peripheral nerve palsies.
   - Infection condition of the nervous system – eg. Meningitis, polyneuritis and neuro syphilis.
   - Traumatic conditions – Traumatic brain injury and dysarthria
   - Toxic conditions – dysarthria due to exogenic and endogenic causes.
   - Degenerative and demyelinating conditions – multiple sclerosis, Parkinson’s disease, motor neuron diseases, Amyotrophic lateral sclerosis.
   - Genetic conditions – Huntington’s chorea, Guillian – Barre syndrome.
   - Others leading to dysarthria – Anoxic conditions, metabolic conditions, idiopathic conditions and neoplasm.

Unit 2
1. Assessment of dysarthria:
   - Instrumental analysis: Advantages and disadvantages of instrumental analysis of speech in dysarthria.
   - Physiological and Electrophysiological methods
   - Acoustics
   - Perceptual analysis – measures, standard tests and methods, speech intelligibility assessment scales, advantages and disadvantages of perceptual analysis of speech in dysarthria.

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

Unit 3
1. Management of dysarthria:
• Medical, surgical and prosthetic approaches
• Speech therapy
  ➢ Facilitatory approaches: Vegetative exercises, Oral sensori motor facilitation techniques
  ➢ Compensatory approaches – correction of respiratory, phonatory, articulatory and prosodic errors.
  ➢ Strategies to improve intelligibility of speech.

Unit 4 (12 hrs)

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

Unit 5 (12 hrs)

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

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading


Acquired Speech and Language disorders - A Neuroanatomical and Functional

SEMESTER V
B 5.3 TECHNOLOGY & AMPLIFICATION DEVICES FOR PERSONS WITH HEARING IMPAIRMENT

(80+20 marks) (Total = 64 hrs)

PART A:

Unit 1

(10 hrs)

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


Unit 2

(12 hrs)


PART B:

Unit 3

(16 hrs)

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

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

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

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

Unit 4  
(12 hrs)

Electroacoustic Characteristics & measurements for hearing aids
a) Instrumentation & Analysis of Electroacoustic characteristics of all types of hearing aids.
b) Measurement of standard & specification of hearing aids according to ISI, IEC and ANSI
c) Interpretation of the analysis

Unit 5  
(14 hrs)

Hearing Aid selection
a) Pre-selection factors: Ear to be fitted, monoaural vs. binaural hearing aids, type of receiver, style of hearing aid.
b) Prescriptive & comparative procedure
c) Functional gain & insertion gain methods: Instrumentation, prescription formulae, Articulation Index, Speech-spectrum (banana), merit & demerits of each.
d) Hearing aids for conductive hearing loss, congenital malformation, chronic middle ear disorders
e) Hearing aids for infants/children/multiple handicapped
f) Hearing aids for adults & geriatrics: recruiting ears, poor word recognition scores (WRS)
g) Hearing aids for the sightless
h) Procuring hearing aids under various schemes of the Government of India / State

LIST OF BOOKS

Compulsory Reading:

Additional Reading:


9. ANSI & IEC Specifications
SEMESTER V
B 5.4 PROFESSIONAL PRACTICES IN SPEECH AND HEARING

(80+20 marks) (Total = 64 hrs)

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

- Epidemiology of speech, language and hearing disorders
- Service delivery and CBR issues
- Legislative support for rehabilitation
- Documentation and ethical issues

Unit 1 (14 hrs)
1. Epidemiology of speech, language and hearing disorders
2. Environmental, Social, Economic implications and preventive education
3. Levels of prevention: Primary, Secondary, Tertiary
4. Survey, prevalence, Incidence and its implication in planning
5. Health promotion, specific protection, early diagnosis and treatment of a high risk infant, Disability limitation, Educational and Vocational rehabilitation

Unit 2 (12 hrs)
1. Approaches to service delivery: Institution based, Camp based, Community based and Role of NGOs
2. Review of services in India
3. Integration of Disabled into the community and ICF 2001

Unit 3 (12 hrs)
1. Duties and responsibilities of SLP in various settings
2. Professional ethics for SLPS, Code of Ethics, Right to Education Act, Industrial Employment Act
3. Interacting with allied professional and community health workers

Unit 4 (14 hrs)
1. Planning services for the communication disordered population: Philosophy, planning, establishment of services for communication disorders- infrastructure, budget, staffing, equipment, furniture, policy making, record keeping, proposal writing.
3. Empowering parents, persons with disabilities and the community; Skill transfer to DHLS, parents; grass-root level workers, teachers and health workers
Unit 5 (12 hrs)

2. The professional as a witness; documentation; handling legal issues

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:


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

a) Analysis of fluency in 2 normal samples and 2 patients with stuttering / cluttering, neurogenic stuttering (percent disfluency), rate of speech, effort, naturalness, various types of disfluencies)

b) Use of SSI, SPI, and fluency tests

c) Assessment of 2 patients with dysarthria / apraxia / dysphagia using tests

d) Planning, writing, and executing therapy with 10 patients with stuttering / cluttering / neurogenic stuttering / dysarthria / apraxia / disphagia

e) Use of AAC in at least 1 patient

f) Counseling patients with the above disorder

g) Record maintenance

h) Presenting a case in clinical conference
SEMESTER V
B 5.5 CLINICAL PRACTICUM (b) Audiology

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

Hearing Aid Trial Postings:


2. Observing Real Ear Insertion Gain measurement (10 cases)

3. Pre-selection based on audiological evaluations (10 cases)

4. Hearing Aid trials:
   a. Functional gain, REIG, other methods with monoaural fitting, binaural fitting, Programmable hearing aid – Analog Digital
   b. Explaining the benefits of hearing aid to the patient/caregiver

5. Counselling patients/caregivers regarding hearing aids – Care, maintenance, adjustments, tips to caregivers regarding acceptance of hearing aids (5 children & 5 adults). Binaural amplification and its uses.


7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.


9. Administration of Self (Help) assessment scales.

10. Fitting hearing aids for sloping hearing loss.

Rehabilitation Audiology

1. Role-playing activities for speech reading, communication strategies and auditory learning.

2. Compile activities on management of deaf-blind children.

3. Compile activities on management of children with central auditory processing disorders.
4. Compile information on cochlear implants regarding candidacy, cost, places where it is done and rehabilitation of cases, in Indian contexts.

Diagnostic Audiology/Noise/Rehabilitative Technology:

1. Holistic audiological assessment for differential diagnosis:
   a. Speech: PI/PB Function, Stenger, BC Speech
   b. Noise: SAL, SPIN, (10 cases)
   c. Imittance audiometry: Basic tests, Acoustic Reflex Decay, Eustachian Tube function, SPAR
2. Compiling reports for the above.
3. Testing multiple handicapped children

4. Compile information on cochlear implants reg. candidacy, cost, places where it is done and rehabilitation of cases.

5. Calibration of pure tone audiometry (AC, BC, Speech)

6. Noise measurement and attenuation measurement of ear protection devices.
SEMESTER VI
B 6.1 NEUROGENIC LANGUAGE DISORDERS IN ADULTS
(80+20 marks)                                                            (Total = 64 hrs)

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

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

Unit 1 (12 hrs)
1. Neural bases of language: Neuroanatomical, neurophysiological and neurochemical correlates for language function
2. Pathophysiology of neurological lesions affecting speech and language including concepts of recovery, reorganization and relearning
3. Theoretical considerations in neurogenic language disorders: Competence Vs Performance; loss Vs Interference, Regression hypothesis, multilingualism, Unidimensional Vs multidimensional breakdown

Unit 2 (12 hrs)
1. Definitions of Aphasia
2. Etiologies: CVA, vascular supply to brain, Blood Brain Barrier, trauma etc.
3. Classification of aphasia based on anatomical, linguistic and psycholinguistic aspects
4. Clinical features: Linguistic, psychosocial, neurobehavioural
5. Associated problems in aphasia: their definition, classification and clinical features

Unit 3 (14 hrs)
1. General and specific neurological examination procedures (higher functions, cranial nerves, motor and sensory systems, reflexes and fundus)
2. Neurological investigations: Electrophysiological (Electro Encephalo Gram, Evoked potentials) and imaging (Computerized Tomography, Magnetic Resonance Imaging)
3. Assessment of speech, language and cognitive behaviour of adults with a language-based disorder: Informal and formal test procedures (Western Aphasia Battery, Boston Diagnostic Aphasia Examination, Boston Naming Test, Minnesota Test for Differential Diagnosis of Aphasia, Porch Index of Communicative abilities, Functional Communication Profile, Token Test, Revised Token Test, Bilingual Aphasia Test, MAE and others; Indian tests and adaptations.

Unit 4 (14 hrs)
1. Other language disorders in adults: Introduction, Etiology, clinical profile, assessment and management
   - Subcortical aphasias
   - Traumatic Brain Injury
• Right Hemisphere Damage Disorder
• Primary Progressive Aphasia
• Language disorders in Dementia
• Schizophrenia
• Acquired dyslexias
• Metabolic disorders
• Aphasias in illiterates, sign language users, bilinguals / multilinguals and others.

2. Differential diagnosis of Adult Neurogenic disorders

Unit 5 (12 hrs)
1. Intervention: Prognostic indicators, Spontaneous recovery; General principles of therapy; specific techniques (Melodic Intonation therapy, Visual Action therapy, Schuell’s Auditory stimulation, Thematic language stimulation and others)

2. Team approach; Group therapy; Family support-preparing family, friends and colleagues on what to expect and how to deal with aphasic as a person; Counseling regarding role of family; Individual counselling and spouse and family counselling

3. AAC

LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:


SEMESTER VI
B 6.2 NOISE MEASUREMENTS AND HEARING CONSERVATION
(80+20 marks)                                                            (Total = 64 hrs)

Unit 1:                                                                (14 hrs)

a) Noise in the environment and effects of noise:
   Definition of noise
   Sources – community, industrial, music, traffic and others
   Types – steady & non-steady.

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

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

Unit 2:                                                                (14 hrs)

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

Speech audiometry:
   Speech discrimination tests with and without the presence of noise
   Filtered speech tests and time compressed speech tests
   Social Adequacy Index

Other audiological evaluations:
   - Impedance audiometry
   - ERA
   - OAE
   - Tests for susceptibility

Unit 3:                                                                (12 hrs)

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

Unit 4: (12 hrs)
Hearing conservation:
Need for hearing conservation program, steps in hearing conservation program
Ear protective devices: (EPDs)
- Types: Ear plugs, ear muffs, helmets, special hearing protectors, merits and demerits of each
- Properties of EPDs: Attenuation, comfort, durability, stability, temperature, tolerance
- Evaluation of attenuation characteristics of EPDs.
- Toughening

Unit 5: (12 hrs)
Legislations related to noise:

- Claims for hearing loss: Fletcher point eight formula, AMA method, AAOO formula, California variation in laws, factors in claim evaluation, variations in laws and regulations, date of injury, evaluation of hearing loss, number of tests.

- Indian studies/acts/regulations, American acts.

LIST OF BOOKS


7. BIS Specifications - List attached
- IS Specifications - Noise Measurements.
SEMESTER VI  
B 6.3 BASIC STATISTICS  
(80+20 marks)  
(Total = 64 hrs)  

Objectives:  

After studying this paper at the end of the semester, the student should be able to understand the following –  
1) The basics of statistics and its relevance to the field of speech and hearing  
2) Carry out calculations of data related to basic statistical operations  
3) Interpret statistical results at basic level and make inferences  

Unit 1  
Introduction to statistics: Its importance in behavioural sciences; descriptive statistics and inferential statistics; usefulness of quantification in behavioural sciences; application to speech and hearing  

Unit 2  
Measures: scales of measurement; nominal, ordinal, interval and ratio scales  
Data collection: classification of data- class intervals, continuous and discrete measurement, drawing frequency curve, drawing inference from a graph  

Unit 3  
Measurement of central tendency: Need, types- mean, median, mode; working out these measures with illustrations  
Measures of variability: Need, types of range, deviation- average deviation, standard deviation, variance; interpretation  

Unit 4  
Normal distribution: general properties of normal distribution; theory of probability; illustration of normal distribution; area under normal probability curve  
Variants from the normal distribution: skewness, kurtosis; their quantitative measurement; Introduction to non-parametric statistics  

Unit 5  
Correlation: Historical contribution; meaning of correlation; types of correlation- product-moment correlation, content correlation, rank correlation etc  
Standard error sampling distribution; Type I and Type II errors, Y2, ‘t’ and ‘F’-tests; Methods of significance of differences between means and their interpretation and probability levels-small samples, large samples
LIST OF BOOKS

Compulsory Reading:


SEMESTER VI
B 6.4 SCIENTIFIC ENQUIRY IN AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

(80+20 marks) (Total = 64 hrs)

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

- Need for scientific enquiry
- Basics of research in speech and hearing
- Documentation of research

Unit 1 (12 hrs)
1. Scientific status of speech language pathology and audiology
2. Speech language pathology and audiology as a behavioural science
3. Need for scientific enquiry in speech language pathology and audiology
4. Choosing a research problem
5. Formulation of research question
6. Statement of research question
7. Formulation of hypothesis
8. Types of hypotheses

Unit 2 (12 hrs)
1. Parameters for scientific research in speech language pathology and audiology:
   - Identification of variables and the types
   - Types of data and its nature
   - Measurement procedures in speech language pathology and audiology
   - Instrumental and behavioural measures, and recording procedures

Unit 3 (12 hrs)
1. Sampling methods: types, methods of data collection
2. Application of the above with hypothetical illustrations

Unit 4 (14 hrs)
1. Introduction to research methods and designs: Ex post-facto, experimental, standard group comparisons, evaluation research etc
2. Application of these to clinical population and community research

Unit 5 (14 hrs)
1. Documentation of research: Reporting research-organization, analysis and presentation of data
2. Components of research article, report writing style
3. Ethics of research in behavioural sciences
4. Qualities of a researcher/scientific clinician
LIST OF BOOKS

Compulsory Reading:


Additional/Optional Reading:


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

a) Assessment of 5 clients with aphasia / autism / LD / TBI / RHD using relevant tests

b) Planning, writing and executing therapy for 5 patients with apraxia / autism / LD / TBI / RHD

c) Presenting a case in clinical conference

d) Counseling in the above patients

e) Record maintenance
SEMESTER VI
B 6.5 CLINICAL PRACTICUM (b) Audiology

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

Hearing Aid Trial Postings:


2. Observing Real Ear Insertion Gain measurement (10 cases)

3. Pre-selection based on audiological evaluations (10 cases)

4. Hearing Aid trials:
   a. Functional gain, REIG, other methods with monoaural fitting, binaural fitting, Programmable hearing aid – Analog Digital
   b. Explaining the benefits of hearing aid to the patient/caregiver

5. Counselling patients/caregivers regarding hearing aids – Care, maintenance, adjustments, tips to caregivers regarding acceptance of hearing aids (5 children & 5 adults). Binaural amplification and its uses.


7. Models and makes available in the market, their EAC, cost of hearing aids, its suitability to various audiogram configurations, age etc.


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Diagnostic Audiology/Noise/Rehabilitative Technology:

1. Holistic audiological assessment for differential diagnosis:
   a. Speech: PI/PB Function, Stenger, BC Speech
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   c. Immittance audiometry: Basic tests, Acoustic Reflex Decay, Eustachian Tube function, SPAR

2. Compiling reports for the above.

3. Testing multiply handicapped children

4. Compile information on cochlear implants reg. candidacy, cost, places where it is done and rehabilitation of cases.

5. Calibration of pure tone audiometry (AC, BC, Speech)

6. Noise measurement and attenuation measurement of ear protection devices.

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