

**UNIVERSITY OF MUMBAI**

No. UG/163 of 2018-19

**CIRCULAR:-**

Attention of the Principals of the Affiliated Colleges and Directors of the recognized Institutions in Faculty of Interdisciplinary Studies.

They are hereby informed that the recommendations made by the I/c Dean, Faculty of Humanities and the Ad-hoc Board of Studies in Special Education at its meeting held on 12<sup>th</sup> December, 2017 have been accepted by the Academic Council at its meeting held on 16<sup>th</sup> February, 2018 vide item No. 4.1 and subsequently approved by the Management Council at its meeting held on 16<sup>th</sup> February 2018 vide item No.02 and that in accordance therewith, in exercise of the powers conferred upon the Management Council under Section 74(4) of the Maharashtra Public Universities Act, 2016 (Mah. Act No. VI of 2017) the Ordinance 6464 & 6465 Regulations 9204 to 9207 the syllabus of Post Graduate Diploma in Auditory Verbal Therapy has been introduced and the same have been brought into force with effect from the academic year **2018-19**, accordingly. (The same is available on the University's website [www.mu.ac.in](http://www.mu.ac.in)).

MUMBAI – 400 032

14<sup>th</sup> March, 2019

To ,

(Dr. Ajay Deshmukh)  
REGISTRAR

The Principals of the affiliated Colleges and Directors of the recognized Institutions in Faculty of Humanities. (Circular No. UG/334 of 2017-18 dated 9<sup>th</sup> January, 2018.)

**A.C/4.1/16/02/2018**

**M.C/2/16/02/2018**

No. UG/ 163 -A of 2018-19

MUMBAI-400 032

14<sup>th</sup> March, 2019

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Copy forwarded with Compliments for information to:-

- 1) The I/c Dean, Faculty of Humanities,
- 2) The I/c Dean, Faculty of Interdisciplinary Studies,
- 3) The Chairman, Ad-hoc Board of Studies in Special Education,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Board of Students Development,
- 6) The Co-ordinator, University Computerization Centre,

(Dr. Ajay Deshmukh)  
REGISTRAR

**Post Graduate Diploma Course**  
**in**  
**Auditory Verbal Therapy (PGDAVT)**

**Regulations, Norms and Course Content**



June, 2015

**Rehabilitation Council of India**

B-22, Qutab Institutional Area,

New Delhi - 110 016

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## 1 Preamble

The ratification of the UN Convention on the Rights of Persons with Disabilities (Article 24) in 2007 by the Indian government and the passing of the 'The Right to Education Act (2009)' subsequently has brought a new direction to the field of management of deaf and hard of hearing individuals in the country. Professionals offering services to the deaf and hard of hearing must acquire the skills to adopt and use modern technology for the benefit of persons with hearing impairment. Rehabilitation Council of India (RCI) is India's apex body entrusted with the responsibility to regulate and monitor training of professionals in the area of disability. The Council has been designing, from time to time, training programs for the manpower generation in different areas of disability. The RCI is in the process of implementation of the forward thinking concept of a barrier free environment for persons with disabilities as enunciated in the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) 2006.

The significant change that the UNCRPD (2006) has brought about is that issues regarding persons with disabilities will no longer be a medical or health care issue. On the other hand, they will be viewed as a human rights issue. However, majority of the training programs tend to focus more on disability than on the needs of differently abled children. The RCI has been designing training programs to accommodate this changed shift. One such program is the institution of a Post Graduate Diploma Course in Auditory Verbal Therapy for the training professionals in the fields of Speech & Hearing and Special Education. By its very definition, Auditory Verbal Therapy, highlights the similarities between hearing children and their deaf and hard of hearing peers and therefore uses normal patterns of development on which to base the habilitation of deaf and hard of hearing children. Inclusion / inclusive education lie at the very heart of Auditory Verbal Therapy and therefore, the new program is justified.

RCI plays a key role in linking tradition to modernity and its training courses for professionals are the bridges that enable the link. Post Graduate Diploma Course in Auditory Verbal Therapy will allow the professionals serving the deaf and hard of hearing in India to build on their knowledge and skills from their masters, graduation and diploma programs and to upgrade their knowledge.

Systematic and intensive training of the existing re/habilitation professionals is critical if India is to keep pace with international trends in the habilitation of deaf and hard of hearing children. International protocol recommends that training in Auditory Verbal therapy be given only by professionals who are themselves certified as LSLS Cert. AVT® by the A.G. Bell Academy, an international organization. Therefore, this Post Graduate Diploma in Auditory Verbal Therapy should preferably follow the same modules of theory, guided observation and practice of Auditory Verbal Therapy as taught in the training of LSLS Cert. AVT®.

Across the world, all countries are working towards implementing the position statement of the Joint Committee on Infant Hearing, 2007. This 1-3-6 protocol specifies that with the help of universal newborn infant screening babies with hearing loss be identified by one month of age and be appropriately provided amplification facility by three months of age so that effective intervention begins at six months of age at the latest. By instituting this Post Graduate Diploma in Auditory Verbal Therapy, India will demonstrate through her apex regulatory body of RCI that she recognizes the need for focused training of re/habilitation

professionals who serve deaf and hard of hearing babies in listening, learning and spoken language skills in order to comply with the 1-3-6 protocol and so become members of the global community.

## **2 Aims and Objectives**

The aim of the Post Graduate Diploma Course in Auditory Verbal Therapy is to train and equip professionals in the fields of Speech & Hearing and Special Education with knowledge and skills to practice auditory verbal therapy with young children with deafness and hard of hearing as a part of the early intervention program. The course further aims to facilitate professionals in setting up of early intervention centers staffed by therapists who have the requisite skills to work with deaf and hard of hearing children.

The objectives of this program are to

- a) impart knowledge in modern technology and its significance in the practice of educating children with hearing impairment
- b) identify the principles and practices of auditory verbal therapy and related services
- c) develop skills and competencies for practicing auditory verbal therapy as a part of the early intervention services for young children with hearing impairment,
- d) promote speech-language development and education of young hearing impaired children, and
- e) promote parent - teacher empowerment
- f) develop skills and competencies in students for practicing AVT as a part of early intervention for young hearing impaired children, and
- g) to teach the need and significance of practice of AVT in India

## **4. Duration of the Course**

The duration of the course is one academic year (2 semesters)

## **5. Medium of Instruction**

The medium of instruction shall be English

## **6. Eligibility for Admission**

Any candidate with a graduate degree in Audiology /Speech-Language Pathology/ Speech and Hearing, or Special Education (HI), or equivalent degree from any other University and who is registered with the Rehabilitation Council of India will be eligible to seek admission for the course. Foreign nationals should produce evidence of professional registration in their home country.

## **7. Teacher – student ratio**

The teacher student ratio is 1: 5

## 8. Intake capacity

Considering infrastructural facilities needed and the dearth of certified AV therapists in India, a maximum of 10 candidates may be admitted for the course.

## 9. Type of institutions that can offer the program

Only those institutions that fulfil the following criteria are eligible to conduct the program:

- a) Institutions offering RCI approved graduate programs in Speech & Hearing or Special Education in the area of hearing impairment or institutions with RCI affiliation for more than 4 years.
- b) Institutions having surgical facility for cochlear implantation and post implant habilitation facility, or having MOU with institutions having surgical and post implant habilitation facility.

## 10. Theory and practical work

### Semester 1\*

Semester	Title	Theory** Hours	Practical Hours	Clinical Hours
1	Auditory Verbal Techniques	50	40	--
	Spoken Language and Communication Development	50	40	--
	Child Development	50	40	--
	Clinical work			290
<b>Total</b>		<b>150</b>	<b>120</b>	<b>290</b>
2	Hearing and Amplification Technologies	50	40	--
	Parent Empowerment and Curricular Support	50	40	--
	Clinical work			380
<b>Total</b>		<b>100</b>	<b>80</b>	<b>380</b>

\* Calculated on the basis that each semester will have 16 weeks with 5 working days, and each working day will have 7 hours. It means each semester will be of 560 hours (16 weeks x 5 days x 7 hours). This is in addition to examinations, preparatory holidays for exam, vacation etc.

\*\* There shall be 5 units in each paper and each unit shall be taught for 10 hours.

**Minimum Practical work: 1 and 2 semesters (Clinical examination)**

S.No.	Activity	Sessions / Children	Hours
1	Unsupervised observations	50	50
2	Supervised observation of teaching sessions with Teacher Practicum Supervision Form	20	20
3	Practice sessions with Teacher Behavior Rating Scale (TBRs)	20	30
4	Assessed sessions (TBRs)	10	20
5	Practice of Phonetic Level Evaluation and Speech Strategies of Dr. Ling	30	10
6	Observation and practice –Audiograms 15 observations and 5 practice sessions	15	20
7	Practice – Hearing evaluation	5	10
8	Observation of Hearing aids fitment	10	20
9	Observations of Mapping sessions	10	20
10	Observation of Speech Perception Tests	5	10
11	Case studies including case history	5	10
12	Clinical work with Children with Hearing impairment		450*

\* Auditory verbal therapy + Speech therapy

**11. Scheme of Examination**

Examination (theory papers) can be either by internal or external examiners. Clinical examination shall be by external examiner only. Internal assessment and practical examination shall be by only the faculty teaching a given paper. Preparatory leave of 2 weeks will be granted to the trainees prior to the external theory examination.

The scheme of examination shall be as follows:

Paper	Title	Theory	IA	Practical	Total
1.1	Auditory Verbal Techniques	50	20	30	100
1.2	Spoken Language and Communication Development	50	20	30	100
1.3	Child Development	50	20	30	100
1.4	Clinical*	80	20	--	100
2.1	Hearing and Amplification Technologies	50	20	30	100
2.2	Parent Empowerment and Curricular Support	50	20	30	100
2.3	Clinical*	80	20	--	100
	<b>Total</b>	<b>410</b>	<b>140</b>	<b>150</b>	<b>700</b>

## 12. Standard of Passing

The minimum percentage of marks required for passing is 50%, separately in theory, IA, practical and clinical examination. Class will be declared based on the aggregate of marks of both the semesters. The candidates will be declared to have passed the examination as follows:

First Class with Distinction	≥ 75%
First Class	≥ 60%
Second Class	≥ 50%

## 13. Reappearing Facility

A candidate has to pass each examination in not more than three attempts including the first attempt. The candidate to appear for the examination at the end of second semester must have passed all the papers of the first semester. The entire course itself should be completed in not more than 2 years.

## 14. Infrastructure facilities

The institution conducting the training course should have a Model Centre practicing auditory verbal therapy or should have a Memorandum of Understanding Auditory Verbal therapy center near to the institution. The teacher student ratio (therapist – cochlear implanted children) of the model center should be 1 : 4 and the center should have a minimum strength of 10 young hearing impaired children with cochlear implants.

The minimum infrastructure required for offering this Post graduate Diploma program for an intake of 10 students, shall be as given below. The requirements for infrastructure shall double for an additional intake of 10 students or part thereof.

### a) Space: Exclusively for this program

Class room	1 room	15' x 10'	150 Sq. ft
Laboratory	1 room	20' x 10'	200 Sq. ft
Therapy rooms	5 rooms	8' x 8' each	320 Sq. ft

Space for staff, library, waiting hall, child care, office & other facilities ~ 500 Sq. ft

### b) Staff

Audiologist / Speech Language Pathologist*	1	Full time
Lecturer in Special Education <sup>@</sup>	1	Full time
Lecturer in Auditory Verbal Therapy <sup>\$</sup>	1	Part time/Full time
Lecturer in Clinical Psychology/Clinical Psychologist <sup>#</sup>	1	Visiting

\* MASLP or MSc (Audiology) or M.Sc (Speech-language Pathology), or its equivalent as recognize by RCI

<sup>@</sup> Master's Degree in Special Education (HI) or its equivalent as recognized by RCI

- \$ a) MASLP or MSc (Audiology), or MSc (Speech-language Pathology), or Master's Degree in Special Education (HI), or M.Ed (Special Education) with LSLS Cert. in AVT, or its equivalent as recognized by RCI  
b) Must have worked with 50 children with cochlear implants in the last 5 years.  
# M.Phil in Clinical Psychology or its equivalent as recognized by RCI

**c) Equipment/ Material**

Digital Hearing Aids - Minimum 6 nos.  
Therapy material like toys & play materials, toys for informal hearing screening such as bells and noise making toys  
Material for auditory verbal training  
Models of Ear and cochlear implant

**d) Clinical infrastructure**

Teacher: Children with cochlear implants      1 : 5  
Teacher: Children with hearing aids            1 : 5

**e) Library**

Books and Journals listed under each paper are essential.

**15. University Affiliation**

University affiliation is required for PG Diploma in Auditory Verbal Therapy programme.

**16. Certification as a Registered Professional**

It is mandatory as per Section 13 of RCI Act for every teacher of special education to obtain a "Registered Professional Certificate" from the Rehabilitation Council of India to work in the field of special education in India. As continuous professional growth is necessary for the renewal of the certificate, the teachers as well as educators in special education should undergo in-service programme periodically to update their professional knowledge. Amendments, if any, to the regulations of the course will be made periodically by the Rehabilitation Council of India. Any deviation from the above regulations should have the prior approval of the Rehabilitation Council of India.

The candidates with Post Graduate Diploma in Auditory Verbal Therapy (PGDAVT) will be eligible for addition of qualification for registration in CRR as Auditory Verbal Therapist (AVT) in addition to their existing categories of registration under any other category (Sl. No.17).

## **Course curriculum for the Post Graduate Diploma in Auditory Verbal Therapy**

### **Paper 1.1 Auditory Verbal Techniques**

#### **Objectives**

At the end of the course, students should be able to

- 1) describe the history and development of auditory verbal therapy
- 2) understand the rationale, principles, strategies, techniques and procedures in auditory verbal method of teaching.
- 3) develop skills to practice AVT to facilitate normal integration of hearing impaired children
- 4) provide support to parents in an auditory verbal setting
- 5) develop skills in writing an auditory verbal treatment plan, and
- 6) understand the history and development of auditory verbal Teaching and its implications

#### **Unit 1: History, Philosophy and Principles of AVT**

**10 hours**

- 1.1 History of Auditory Verbal Practice and contributions of the pioneers
- 1.2 Evidence based practice and professional development requirements
- 1.3 Principles and procedures of Auditory Verbal Training
- 1.4 Pre-requisites of Auditory Verbal Training and the factors that affect the outcomes
- 1.5 Importance and system of documentation of diagnostic, clinical and referral reports

#### **Unit 2: The auditory verbal treatment plan**

**10 hours**

- 2.1 Base line assessment and short term goals based on normal development
- 2.2 Planning and execution of weekly session plans and recording diagnostic information
- 2.3 Age appropriate activities and instructional material for AVT sessions
- 2.4 Listening strategies and Techniques of AVT
- 2.5 Analysis of language samples to evaluate outcomes

#### **Unit 3: Listening skills development and assessments**

**10 hours**

- 3.1 Need and importance of developing auditory skills and guiding and coaching parents to develop auditory skills at home
- 3.2 Stages of auditory hierarchy and sequential planning through hierarchy of listening skills
- 3.3 Importance and need for assessments in four areas of audition, language, speech and cognition
- 3.4 Formal and informal assessment of functional listening skills and the use of six sounds test
- 35 Test results to make recommendations to parents about management of their child with deafness/ hard of hearing including development of auditory skills

**Unit 4: The auditory verbal therapy plan****10 hours**

- 4.1 Planning long- and short-term goals: Working with babies below the age of two years
- 4.2 The importance of singing and early learning to listen sounds: Importance of home training activities
- 4.3 Introduction to parent counselling, facilitation of parent participation and transfer of skills
- 4.4 Importance of neural plasticity subsequent to auditory stimulation
- 4.5 Recognition of red flags and action plan

**Unit 5: The role of parents in Auditory Verbal Technique****10 hours**

- 5.1 The role of parents in auditory verbal plan and the team approach
- 5.2 Sharing goals and diagnostic evaluation with parents in every session
- 5.3 Coaching Parents during the session and to encourage participation
- 5.4 Transfer of goals from therapy to home
- 5.5 Management and realistic expectations of children with additional issues

**Practical**

- 1.1.1 Observe and write listening strategies used in one to one session (4 sessions)
- 1.1.2 Write 3-months AVT plan for a child with cochlear implant
- 1.1.3 Plan short term and long term goals for a child (2 children)
- 1.1.4 Role plays of reading stories to children of different age group of 2 years to 5 years (4 children)
- 1.1.5 Observe and record the behavior and language of normal hearing children of the age of 2 to 5 years (4 children)

**References**

- Estabrooks, W. (2006). Auditory Verbal Therapy and Practice, AG Bell Association for the Deaf and Hard of Hearing, Inc.
- E. Cole., & C. Flexer. (2007). Children with Hearing :Loss Developing Listening and Talking Birth to Six, Plural Publishing
- Estabrooks, W. (1998). Cochlear Implants for Kids, AG Bell Association for the Deaf and Hard of Hearing, Inc.
- Estabrooks, W., & Marlowe J, The Baby is Listening, A G Bell Association for the Deaf and Hard of Hearing, Inc, Washington DC
- Pollack, D.(1970). Educational Audiology for the Limited Hearing Infant, Charles C. Thomas
- Simser, J. (1993). Auditory-Verbal Intervention: Infants and Toddlers, Volta Review 95(3), 217-229
- D. Ling., & A.G. Bell. (1989). Foundations of Spoken Language for Hearing-Impaired Children

D. Ling., A. Ling., & A.G. Bell. (1978). *Aural Habilitation: The Verbal Foundations of Learning in Hearing-Impaired Children*

Estabrooks, W. (1994). *Auditory Verbal Therapy for Parents and Professionals*, A.G. Bell Association for the deaf and hard hearing

Flexer, C. (1994). *Facilitating Hearing and Listening in Young Children*. Singular Publishing Group, Inc. San Diego

## **Paper 1.2 Spoken Language and Communication Development**

### **Objectives**

At the end of the course, students should be able to

- 1) explain the anatomy of the speech mechanism and its role in the development of age appropriate speech
- 2) describe the normal development of phonology in hearing babies and young children (birth to age 5 years)
- 3) describe normal development of language, hearing, cognition, and pragmatics list and explain the types and stages of play and how to assess play in children
- 4) describe the impact of additional difficulties (sensory integration/attention difficulties) on the rate of progress in children with deafness/ hard of hearing.

### **Unit 1: Speech and Hearing Development**

**10 hours**

- 1.1 Anatomy and physiology of the speech mechanism
- 1.2 Speech acoustics and its application: Fundamentals of acoustic phonetics
- 1.3 Emergence of speech sounds and phonological development (birth to age 5 years)
- 1.4 Typical errors in the emerging speech of hearing children
- 1.5 Formal speech assessment: tests and techniques

### **Unit 2 Language Development**

**10 hours**

- 2.1 Aspects of language (phonology, morphology, syntax, semantics & pragmatics) and theories of language development
- 2.2 Acquisition of spoken language development (0-6 years)
- 2.3 Development of complex conversational competence
- 2.4 Development of divergent/convergent thinking
- 2.5 Development of second language, bilingualism
- 2.6 Factors affecting language development

### **Unit 3 Methods of Developing Language**

**10 hours**

- 3.1 Principles of language teaching
- 3.2 Methods of language development – natural, structural and combined methods
- 3.3 Techniques and strategies used in the development
- 3.4 Spoken language modelling, prompting techniques, responsive teaching
- 3.5 Teaching meaningful and interactive conversation
- 3.6 Computer aided language teaching techniques

### **Unit 4 Language Disorders and Assessment**

**10 hours**

- 4.1 Factors influencing language development
- 4.2 Characteristics of language disorders
- 4.3 Need, relevance and challenges in the assessment of language
- 4.4 Formal and informal tests of language and communication
- 4.5 Emergent literacy development

## **Unit 5: Children with Associated Disorders**

**10 hours**

- 5.1 Sensory integration: what it is and its implications
- 5.2 Attention difficulties: what it is and its implications
- 5.3 Perception – Development and disorders
- 5.4 Red flags: what they are, identification, implications and management
- 5.5 The team approach
- 5.6 Case studies

### **Practicals**

- 1.2.1 Obtain and analyze a language sample
- 1.2.2 Obtain and analyze a speech sample
- 1.2.3 Record the language used in daily routine activities of a family (4 children)
- 1.2.4 Track the progress of a hearing impaired child for six months and language

### **References**

- Paul R. (2007). Language disorders from infancy through adolescence. Mosby; Elsevier.
- Riper C. V. (1996). Speech correction: An introduction to speech language pathology. Allyn and Bacon.
- Robertson I. (2009). Literacy and deafness. Plural Publishing.
- Shulman, B. B., & Capone, N. C. (2010). Language development: Foundations, processes and clinical applications. Jones and Barlet Publishers
- Haynes, W. O. (2008). Diagnosis in Speech-Language Pathology. Pearson Education, Inc.
- Hulit L. M. (2002). Born to talk : An Introduction to Speech and Language Development. Allyn and Bacon.
- Mc. Laughlin, S. F. (2006). Introduction to Language Development. Thomson.
- Riper, C. V. (1996). Speech Correction: An Introduction to Speech Language Pathology. Allyn and Bacon.
- Zemlin, W. R. (1998). Speech and Hearing Science. Allyn and Bacon.

## **Paper 1.3 Child Development**

### **Objectives**

At the end of this course, the students should

- 1) have knowledge on the normal development in hearing, language (receptive and expressive), cognition, communication or pragmatics,
- 2) be able to list and explain the type, stages and assessment of play in children,
- 3) be able to understand normal development and its disruption because of hearing impairment
- 4) be able to understand the auditory brain development and its implications
- 5) know and understand the integration of development in four areas of audition, language, speech and cognition, and
- 6) should be able to facilitate incidental learning in young children with hearing impairment

### **Unit 1: Child development stages and learning style**

**10 hours**

- 1.1 Developmental milestones (birth to age 5 years) in audition, language (receptive and expressive), cognition and communication in hearing babies and young children
- 1.2 Developmental milestones in cognition and the role of cognition in language development
- 1.3 Influence of associated factors on child development—culture, community, family and associated problems
- 1.4 Theories of learning and factors affecting learning
- 1.5 Multiple Intelligence and learning style of children

### **Unit 2: The significance of play**

**10 hours**

- 2.1 Types of play in hearing children
- 2.2 The role of play in child development
- 2.3 Assessing and encouraging play in children
- 2.4 The role of play in language development
- 2.5 Role of the Auditory Verbal Therapist in developing play in children who are deaf or hard of hearing.

### **Unit 3: Understanding behavior of children**

**10 hours**

- 3.1 Techniques and strategies of behavior management
- 3.2 Rules and adaptation for discipline in young children
- 3.3 Parents guidance in behavior management and techniques of behavior modification
- 3.4 The relationship between learning and behavior
- 3.5 Management of children with delayed milestones

**Unit 4: Children with additional difficulties****10 hours**

- 4.1 Sensory integration: what it is and its implications
- 4.2 Attention deficit, causes and implications
- 4.3 Conditions related to hearing impairment--sensory integration deficit, autism spectrum and learning disability
- 4.4 Red flags: What they are, identification, implication and management
- 4.5 The team approach to help children with additional issues

**Unit 5: Assessments and procedure****10 hours**

- 5.1 Importance and need for assessments
- 5.2 Informal and formal assessments in language and speech of the children between 0 to 5 years
- 5.3 Relevant standardized assessments for the children from 0 to 5 years
- 5.4 Listening: from simple to complex and how to develop it
- 5.5 Managing disruptive behavior of children in a session

**Practicals**

- 1.3.1 A case study: to track the progress of a hearing impaired child for nine months
- 1.3.2 Write action plan for a Red Flag case
- 1.3.3 Observe and track development of normal hearing and hearing impaired children
- 1.3.4 Observe and record the behavior of a 3-years old normal hearing child in a group of hearing impaired children
- 1.3.6 Write a behaviour modification plan for a child with behaviour issues
- 1.3.7 Assessment of play in children and role of AVT in developing play in children with hearing impairment

**References**

Cole, E., & Flexer, C. (2007) Children with Hearing Loss Developing Listening and Talking Birth to Six, Plural Publishing

Flexer, C. (1994) Facilitating Hearing and Listening in Young Children. Singular Publishing Group, Inc. San Diego

Meaningful Auditory Integration Scale (MAIS) and Infant-Toddler Meaningful Auditory Integration Scale (IT-MAIS)

Boehm, A. (1986). Boehm Test of Basic Concepts-3; The Psychological Corporation, San Antonio, TX

Bracken, B. (1984). Bracken Basic Concept Scale-revised. The Psychological Corporation, San Antonio

TXWadsworth, B. J. (1979) Piaget's Theory of Cognitive Development. Longman, NY

## **Paper 2.1 Hearing and Amplification Technologies**

### **Objectives**

At the end of this course, the students should acquire knowledge of

- 1) the auditory mechanism and its working,
- 2) the audiometric tests and differential diagnosis,
- 3) implantable and non-implantable devices
- 4) the benefits and limitations of different types of amplification systems,
- 5) candidate selection and programming,
- 6) auditory assessment in children for cochlear implantation, and
- 7) the knowledge of the factors that determine the outcome of implantable devices.

### **Unit 1: Anatomy and Physiology**

**10 Hours**

- 1.1 Anatomy of the ear
- 1.2 Physiology of hearing
- 1.3 Classification of hearing loss
- 1.4 Causes of hearing loss (congenital and acquired: Syndromic and non-syndromic)
- 1.5 Auditory plasticity

### **Unit 2: Applied Audiology**

**10 Hours**

- 2.1 Hearing evaluation (pre and post implantation): Protocol for infant hearing screening (formal as well as informal): High risk register
- 2.2 Auditory verbal international audiological protocol and techniques for neonatal hearing screening
- 2.3 Different types of auditory tests: Tympanometry and middle ear acoustic reflex: Evoked potentials in hearing assessment
- 2.4 Trans tympanic electrically evoked ABR: Oto acoustic emission and new born hearing screening
- 2.5 Need for test battery approach: Importance and limitations of different tests/approaches of hearing evaluation: Linking audiological findings to management

### **Unit 3: Technology**

**10 Hours**

- 3.1 Technology for hearing restoration using cochlear implant
- 3.2 Surgical issues and methods
- 3.3 Candidacy for cochlear implant and realistic expectations (Pre-lingual and post –lingual)
- 3.4 Application of intra-operative and post-operative measures (Aided audiogram., electrically evoked ABR (eABR), trans-tympanic eABR, electrically evoked compound action potential, electrically evoked stapedial reflex, cortical auditory evoked potentials (electrically evoked and acoustically evoked).
- 3.5 CI programming: device activation: Mapping and re-mapping

**Unit 4: Technology for hearing restoration****10 Hours**

- 4.1 Hearing aids
- 4.2 Middle ear implant
- 4.3 Implantable bone conduction devices
- 4.4 Auditory brainstem implant
- 4.5 Assistive listening devices: Nature and benefits
- 4.6 Benefits and limitations and different amplifications and their selection / fitting
- 4.7 Care and maintenance of the devices including CI

**Unit 5: Challenges and issues relating technology****10 Hours**

- 5.1 Challenges and issues related to candidacy and outcome
- 5.2 Medical and radiological
- 5.3 Hard failures and soft failures
- 5.4 Recent advances in hearing restoration  
(Bilateral hearing, bi-modal hearing, electro acoustic hearing, cochlear implantation in single sided deafness)
- 5.5 Care and maintenance of different systems: Trouble shooting and counselling

**Practicals**

- 2.1.1 Cochlear Implant Programming (10 sessions)
- 2.1.2 Should prepare a clinical practicum which should include different ways of establishing “T” levels (threshold level) and “M” or “C” levels (comfort levels).
- 2.1.3 Importance of impedance field telemetry / impedance telemetry
- 2.1.4 Care and maintenance of the device
- 2.1.5 Switch on programs and change volume levels.
- 2.1.6 Counseling and decision making session: The students should acquire knowledge on realistic expectation on the outcome of CI relating to bilateral severe to profound sensory neural hearing loss, auditory neuropathy spectrum disorder, single sided deafness, congenital inner ear or auditory nerve anomalies, ski sloping sensory neural hearing loss, subject with congenital atresia
- 2.1.7 Troubleshooting of cochlear implants and hearing aids.

**References**

- Arthur, S. (2008). Digital Hearing Aids. Thieme Publishers
- Brad, A. S. (1998). Clinical Audiology: An Introduction. Singular
- Frederick, N. M., & John, G. C. (2014). Introduction to Audiology: Global Edition. Pearson, 12 Edition
- Jace, W., & Erin, S. (2010). Programming Cochlear Implants (Core Clinical Concepts in Audiology). Plural Publishers, California
- John, K. N. (Editor) (2009). Cochlear Implants: Principles and Practices. LWW.

Kompis, M. B., & Caversaccio, M. D.(Editors) (2015). Implantable Bone Conduction Hearing Aids. Karger

Michael J. R. (2012). Cochlear Implants and Other Implantable Hearing Devices. Plural Publishers, California

Zemlin W. R. (1998). Speech and Hearing Science. Allyn and Bacon.

## **Paper 2.2 Parent Empowerment and Curricular Support**

### **Objectives**

At the end of the course, students should be able to

- 1) list the factors that determine readiness for inclusive education.
- 2) develop skills in reading books to babies and young children so as to maximize development of their auditory memory and receptive and expressive language skills.
- 3) prepare the parents for school readiness and inclusive education
- 4) guide and coach the parents to develop auditory skills in their children, and
- 5) be able to facilitate normal integration of hearing impaired children

### **Unit 1: School Readiness and Inclusive Education**

- 1.1 Concepts of school readiness and transition and the role of transition period in preparation of integration
- 1.2 Recommendations for mainstreaming and the factors influencing recommendations
- 1.3 Parents readiness for integration in regular schools and to develop parents' Advocacy
- 1.4 Formal and informal assessments of child readiness for integration in regular schools
- 1.5 Strategies of pre-teaching and post-teaching language needed for academic assessments

### **Unit 2: Integration in Mainstreaming**

- 2.1 The importance of reading and strategies for the development of reading
- 2.2 Curricular objectives that meet local standards in areas of instruction
- 2.3 Process of developing individualized educational plans
- 2.4 Development of social interaction skills in children
- 2.5 Importance and development of experience books

### **Unit 3: Emergent Literacy**

- 3.1 Using language to communicate and developing vocabulary and categories
- 3.2 The role of the Auditory Verbal Therapist in the development of pre-reading skills: Techniques of reading to babies and young children
- 3.3 Emergent reading and writing skills
- 3.4 Role of executive functions in reading: Guiding and coaching parents in reading
- 3.5 Phonemic awareness and sight word recognition
- 3.6 Using numbers in daily experiences: Understanding simple mathematical operations

### **Unit 4: Impact of hearing impairment on family**

- 4.1 The Grieving process and stages of grief
- 4.2 Coping mechanism and stress management
- 4.3 Family system and impact of hearing impairment on family
- 4.4 Understanding of the diversity of culture, language and family
- 4.5 Different structures of family system and family counselling techniques

## **Unit 5: Development of skills of parents as partners**

- 5.1 Adult learning styles to develop skills of parents
- 5.2 Skills of parents in behaviour management technique
- 5.3 Skills of parents in developing language of their children through daily routine
- 5.4 Parental interactions and conversations with their children
- 5.5 Planning and execution of auditory verbal techniques

### **Practicals**

- 2.2.1 Observe role play of parent guidance
- 2.2.2 Undertake field trips for environmental studies and write a report of language & knowledge enhancement opportunities
- 2.2.3 Observe parents guidance sessions
- 2.2.4 Guide and coach the parents in strategies, techniques and procedures in AVT
- 2.2.5 Make the parents understand their role in the education of their children
- 2.2.6 Prepare picture stories for development of verbs – categories
- 2.2.7 Prepare an arithmetic kit for developing mathematical concepts

### **References**

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