



KARNATAK UNIVERSITY, DHARWAD  
ACADEMIC (S&T) SECTION  
ಕರ್ನಾಟಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಧಾರವಾಡ  
ವಿದ್ಯಾಮಂಡಳ (ಎಸ್ & ಟಿ) ವಿಭಾಗ



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'A' Grade 2014

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No. KU/Aca(S&T)/SSL-394A/2022-23/1056

Date: 23 SEP 2022

ಅಧಿಸೂಚನೆ

- ವಿಷಯ: 2022-23ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಎಲ್ಲ ಸ್ನಾತಕ ಕೋರ್ಸುಗಳಿಗೆ 3 ಮತ್ತು 4ನೇ ಸೆಮೆಸ್ಟರ್  
NEP-2020 ಮಾದರಿಯ ಪಠ್ಯಕ್ರಮವನ್ನು ಅಳವಡಿಸಿರುವ ಕುರಿತು.
- ಉಲ್ಲೇಖ: 1. ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿಗಳು(ವಿಶ್ವವಿದ್ಯಾಲಯ 1) ಉನ್ನತ ಶಿಕ್ಷಣ ಇಲಾಖೆ ಇವರ  
ಆದೇಶ ಸಂಖ್ಯೆ: ಇಡಿ 260 ಯುಎನ್ಇ 2019(ಭಾಗ-1), ದಿ:7.8.2021.  
2. ವಿಜ್ಞಾನ & ತಂತ್ರಜ್ಞಾನ ನಿಖಾಯ ಸಭೆಯ ಠರಾವುಗಳ ದಿನಾಂಕ: 06.09.2022  
3. ವಿಶೇಷ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ನಿರ್ಣಯ ಸಂ. 01, ದಿನಾಂಕ: 17.09.2022  
4. ಮಾನ್ಯ ಕುಲಪತಿಗಳ ಆದೇಶ ದಿನಾಂಕ: 22-09-2022

ಮೇಲ್ಕಾಣಿಸಿದ ವಿಷಯ ಹಾಗೂ ಉಲ್ಲೇಖಗಳನ್ವಯ ಮಾನ್ಯ ಕುಲಪತಿಗಳ ಆದೇಶದ ಮೇರೆಗೆ, 2022-23ನೇ  
ಶೈಕ್ಷಣಿಕ ಸಾಲಿನಿಂದ ಅನ್ವಯವಾಗುವಂತೆ, ವಿಜ್ಞಾನ & ತಂತ್ರಜ್ಞಾನ ನಿಖಾಯದ ಎಲ್ಲ ಸ್ನಾತಕ ಕೋರ್ಸುಗಳ ರಾಷ್ಟ್ರೀಯ ಶಿಕ್ಷಣ ನೀತಿ  
(NEP)-2020 ರಂತೆ 3 ಮತ್ತು 4ನೇ ಸೆಮೆಸ್ಟರ್‌ಗಳಿಗಾಗಿ ವಿಶೇಷ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಅನುಮೋದಿತ  
ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಪ್ರಕಟಪಡಿಸಿದ್ದು, ಸದರ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ಕ.ವಿ.ವಿ. [www.kud.ac.in](http://www.kud.ac.in) ಅಂತರ್ಜಾಲದಿಂದ ಡೌನ್‌ಲೋಡ  
ಮಾಡಿಕೊಳ್ಳಲು ಸೂಚಿಸುತ್ತಾ, ವಿದ್ಯಾರ್ಥಿಗಳು ಹಾಗೂ ಸಂಬಂಧಿಸಿದ ಎಲ್ಲ ಬೋಧಕರ ಗಮನಕ್ಕೆ ತಂದು ಅದರಂತೆ  
ಕಾರ್ಯಪ್ರವೃತ್ತಿಗಳು ಕವಿವಿ ಅಧೀನದ / ಸಂಲಗ್ನ ಮಹಾವಿದ್ಯಾಲಯಗಳ ಪ್ರಾಚಾರ್ಯರುಗಳಿಗೆ ಸೂಚಿಸಲಾಗಿದೆ.

ಅಡಕ: ಮೇಲಿನಂತೆ

*Kud-2022*  
ಕುಲಸಚಿವರು.

ಗೆ,

ಕರ್ನಾಟಕ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಬರುವ ಎಲ್ಲ ಅಧೀನ ಹಾಗೂ ಸಂಲಗ್ನ ಮಹಾವಿದ್ಯಾಲಯಗಳ  
ಪ್ರಾಚಾರ್ಯರುಗಳಿಗೆ. (ಕ.ವಿ.ವಿ. ಅಂತರ್ಜಾಲ ಹಾಗೂ ಮಿಂಚಂಚೆ ಮೂಲಕ ಬಿತ್ತರಿಸಲಾಗುವುದು)

ಪ್ರತಿ:

1. ಕುಲಪತಿಗಳ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
2. ಕುಲಸಚಿವರ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
3. ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ) ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿಗಳು, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
4. ಅಧೀಕ್ಷಕರು, ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ / ಗೌಪ್ಯ / ಜಿ.ಎ.ಡಿ. / ವಿದ್ಯಾಂಡಳ (ಪಿ.ಜಿ.ಪಿ.ಎಚ್.ಡಿ) ವಿಭಾಗ, ಸಂಬಂಧಿಸಿದ  
ಕೋರ್ಸುಗಳ ವಿಭಾಗಗಳು ಪರೀಕ್ಷಾ ವಿಭಾಗ, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.
5. ನಿರ್ದೇಶಕರು, ಕಾಲೇಜು ಅಭಿವೃದ್ಧಿ / ವಿದ್ಯಾರ್ಥಿ ಕಲ್ಯಾಣ ವಿಭಾಗ, ಕ.ವಿ.ವಿ. ಧಾರವಾಡ.



**KARNATAK UNIVERSITY, DHARWAD**

# **04 - Year BASLP (Hons.) Program**

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## **SYLLABUS**

**Subject: Bachelor in Audiology and Speech Language**

**Pathology (B.ASLP)**

**[Effective from 2021-22]**

**DISCIPLINE SPECIFIC CORE COURSE (DSCC) FOR SEM III & IV,**

**OPEN ELECTIVE COURSE (OEC) FOR SEM III & IV and**

**SKILL ENHANCEMENT COURSE (SEC) FOR SEM III & IV**

**AS PER N E P - 2020**

## Karnatak University, Dharwad

### Four Years undergraduate Program in Bachelor in Audiology and Speech- Language Pathology (B.ASLP)

Sem No.	DSC/ Type of Course	Theory/ Practical	Instru ction per week	Total hours of Syllabus / Sem	Duration of Exam	Credit	Marks		
							Summative assessment	Formative assessment	Total
<b>III</b>	DSCT-3.1	Voice and its disorders	4	56	2	4	60	40	100
	DSCT-3.2	Diagnostic audiology-behavioral tests	4	56	2	4	60	40	100
	OEC-3.1	Speech sound disorders	3	42	2	3	60	40	100
	DSCP-3.1	Clinical -Slp	4	56	2	2	25	25	50
	DSCP-3.2	Clinical -Aud	4	56	2	2	25	25	50
	AECC-3.1	Theory(L-1)	3	42	2	3	60	40	100
	AECC-3.2	Theory (L-2)	3	42	2	3	60	40	100
	SEC-VB 3.1	NSS/visual arts	--	--	2	2	25	25	50
	SEC-SB-3.1	AI	--	--	2	2	25	25	50
<b>Total Credits</b>						<b>25</b>			
<b>IV</b>	DSCT -4.1	Fluency and its disorders	4	56	2	4	60	40	100
	DSCT -4.2	Diagnostic audiology – physiological tests	4	56	2	4	60	40	100
	OEC-4.1	Rehabilitative audiology	3	42	2	3	60	40	100
	DSCP-4.1	Clinical -Slp	4	56	2	2	25	25	50
	DSCP-4.2	Clinical -Aud	4	56	2	2	25	25	50
	AECC-4.1	Indian constitution	2	30	1	2	30	20	50
	AECC-4.2	Theory (L-1)	3	42	2	3	60	40	100
	AECC-4.3	Theory (L-2)	3	42	2	3	60	40	100
	SEC-VB 4.1	NSS/visual arts	--	--	2	2	25	25	50
<b>Total credits</b>						<b>25</b>			
<b>Details of the other semesters will be given later</b>									

**Name of Course (Subject): Bachelor in Audiology and Speech Language Pathology**

**Programme Outcome (PO):**

On completion of the 03/ 04 years Degree in Bachelor in Audiology and Speech Language Pathology students will be able to:

**PO1:** The BASLP program is best suited for individuals with a passion to work among the differently-abled people in society.

**PO2:** In this course, the students learn about the normal aspects and disorders of speech, language, swallowing, and hearing.

**PO3:** They develop the necessary skills for evaluating, diagnosing, and treating communication as well as swallowing disorders, under the supervision of qualified Speech-Language Pathologists (SLPs) and Audiologists.

**PO4:** The overall goal of BASLP is to optimize and enhance the ability of an individual to hear, speak, and communicate

**PO5:** Upon completion of this degree, students are qualified to work as audiologists and SLPs.

**PO6:** Audiologists provide a comprehensive array of professional services related to the prevention, identification, diagnosis, and management of auditory and balance-related disorders.

**PO7:** SLPs provide a diverse range of professional services related to the prevention, identification, diagnosis, and management of speech, language, and swallowing-related disorders.

**PO8:** Audiologists and SLPs may also engage in research pertinent to all of the above-mentioned domains.

**PO9:** Audiologists and SLPs may work in a variety of settings including but not limited to: health care settings, regular and special schools, rehabilitation centers, industrial settings, hearing aid and cochlear implant manufacturers, manufacturers of devices and prosthesis for individuals with communication and swallowing disorders, universities/colleges, and their clinics, professional associations, state/central government agencies and institutions, research centers and private practice settings.

**PO10:** To build confidence in the candidate to be able to work in the society and institution of higher education.

## Semester –III

### DSCT 3.1: Voice and its Disorders: 133BLP011

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
3.1	DSCT 3.1	Theory	04	04	56 hours	2 hours	40	60	100

#### Course outcome

After completing this course, the students should be able to

- Describe characteristics of good, normal and abnormal voice and identify voice disorders
- Explain etiology related to voice problems, and its pathophysiology.
- Assess good, normal and abnormal voice.
- Provide counselling and therapy to individuals with voice disorders.

#### Unit 1: Voice Production and Correlates of Voice -12Hrs

- 1.1 Review of anatomy of respiratory, laryngeal, resonatory systems and vocal folds (in detail).
- 1.2 Voice-definition and characteristics.
- 1.3 Physiology of voice – voice production, Theories of phonation, pitch, and loudness change
- 1.4 Correlates of voice – acoustic, psycho-physical, aerodynamic, and physiological correlates
- 1.5 Changes in voice with age (lifespan) and factors influencing voice development.

#### Unit 2: Assessment of Voice-12Hrs

- 2.1 Assessment of voice: Methods
- 2.2 Qualitative: pitch, loudness, quality assessment, rating scales, protocols (GRBAS, CAPE-V & others).
- 2.3 Quantitative-Multi dimensional analysis of voice: Acoustic (such as F0, jitter, shimmer, LTAS, optimum pitch, formant frequencies, H/N and S/N ratio), aerodynamic (such as vital capacity, MPD, MAFR, Sub-glottal pressure), laryngeal (Glottogram, Inverse filtering), myographic.
- 2.4 Measurement of nasality (Objective and subjective)
- 2.5 Invasive methods: Such as videokymography, videoendoscopy & videostroboscopy.

#### Unit3: Voice Disorders and its Classification Systems-14Hrs

- 3.1 Classification systems of voice disorders and their clinical applications.
- 3.2 Voice disorders- Organic, Neurological (vocal fold palsies, Spasmodic dysphonia, Essential voice tremor), Psychogenic, functional, mutational falsetto, puberphonia, Endocrinal- causes, signs, symptoms, vocal symptoms.
- 3.3 Congenital conditions of larynx- characteristics, signs, symptoms, vocal symptoms: oral and nasal cavities causing voice disorders – stenosis, web, tracheo-laryngomalacia, hypernasality and hyponasality.
- 3.4 Aging of Voice: characteristics, signs, symptoms, vocal symptoms
- 3.5 Professional use of voice and its disorders.

#### **Unit 4: Management of Voice Disorders-14Hrs**

- 4.1 Voice therapy techniques/ methods: Facilitating Approaches, Establishing/ Modifying the Pitch, loudness, management of hyper functional, hypofunctional voice disorders, hypernasality & hyponasality.
- 4.2 Medical and Surgical Management of voice disorders: Common classes of drugs used and surgical procedures used in treatment of some disorders of voice

#### **Practicum**

1. Record phonation and speaking samples (counting numbers) from five children, adult men, adult women, geriatric men, and geriatric women. Note recording parameters and differences in material.
2. Make inferences on age and sex differences across the samples obtained in the previous experiment using perceptual voice profiling.
3. Make a note of differences in pitch, loudness, quality and voice control. Explain how voice reflects one's personality and other social aspects.
4. Analyze 5 male and 5 female voices (including your own voice) in terms of acoustic, aerodynamic, laryngeal, and psycho-physical aspects, including the measures of MPT and s/z ratio.
5. Analyze the phonation samples of supra normal, normal, and abnormal voice and generate a voice report based on these findings. Compare findings between men & women. Listen to the voice sample and identify the pitch and confirm the same by instrumental analysis.
6. Perform the acoustic analysis (in 4 & 5) using at least one software i.e., Praat, Dr. Speech, MDVP, Vaghmi.
7. Observe and document findings from five laryngeal examinations (pre- recorded or live) such as VLS, stroboscopy or any other relevant.
8. Administer a PROM on five individuals.
9. Prepare a vocal hygiene checklist.
10. Demonstrate therapy techniques such as vocal function exercise, resonant voice therapy, digital manipulation, push pull, relaxation exercises.

#### **References**

##### **Common**

1. Stemple, J. C., Glaze, L. E., & Gerdeman, B, K. (2014). Clinical voice pathology: Theory & Management (5th Ed.). San Diego: Plural publishers.
2. Aronson, A.E. & Bless, D. M. (2009). Clinical Voice Disorders. (4th Ed.). New York: Thieme, Inc.
3. Boone, D. R., McFarlane, S. C, Von Berg, S. L. & Zraick, R, I. (2013): The Voice and Voice Therapy. (9th Ed.). Englewood Cliffs, Prentice-Hall, Inc. New Jersey.
4. Andrews, M. L. (2006). Manual of Voice treatment: Pediatrics to geriatrics (3rd Ed.). Thomson Delmar Learning.
5. Colton, R. H, Casper, J. K. & Leonard, R. (2006). Understanding voice problems. Baltimore: Williams & Wilkins.
6. Sapienza, C. M., & Ruddy, B H. (2013). Voice Disorders. (2nd Ed.). San Diego: Plural Publisher.

### **Unit 1**

7. Culbertson, W. R., Cotton, S. S., & Tanner, D. C. (2006). *Anatomy and Physiology Study Guide for Speech and Hearing*. Plural Publishing, San Diego.
8. Fuller, D. R., Pimentel, J. T., & Peregoy, B. M. (2012). *Applied Anatomy and Physiology for Speech Language Pathology & Audiology*. Lippincott Williams & Wilkins, Baltimore, MD
9. Seikel, J., King, D., & Drumright, D. (2015). *Anatomy & Physiology for Speech, Language, and Hearing*, V Edition. Cengage Learning
10. Zemlin, W. R. (1998). *Speech and Hearing Science: Anatomy and Physiology*. Allyn & Bacon, Needham Heights, Massachusetts

### **Unit 2**

11. Ferrand, C. T. (2014). *Speech Science: An Integrated Approach to Theory and Clinical Practice*, III Edition. Pearson Education, Inc.
12. Raphael, L. J., Borden, G. J., & Harris, K. S. (2011). *Speech Science Primer: Physiology, Acoustics and Perception of Speech*, VI Edition. Lippincott Williams & Wilkins, Baltimore, MD

### **Unit 3**

13. Ferrand, C. T. (2014). *Speech Science: An Integrated Approach to Theory and Clinical Practice*, III Edition. Pearson Education, Inc.
14. Baken, R. J., & Orlikoff, R. E. (2010). *Clinical Measurement of Speech and Voice*, II Edition. Delmar, Cengage Learning, New York
15. Greene, M. C. L., & Mathieson, L. (1989). *The Voice and its Disorders*. London: Whurr Publishers
16. Paul, R., & Cascella, P. W. (2007). *Introduction to Clinical Methods in Communication Disorders*, II Edition. Paul H. Brookes Publishing Co. Inc. Baltimore, Maryland

### **Unit 4**

17. Aronson, A. E., & Bless, D. M. (2010). *Clinical Voice Disorders*, IV Edition. Thieme, New York
18. Behrman, A., & Haskell, J. (2013). *Exercises for Voice Therapy*, II Edition. Plural Publishing, San Diego
19. Boone, D. R., McFarlane, S. C., Von Berg, S. L. & Zraick, R. I. (2014). *The Voice and Voice Therapy*, XI Edition. Thieme, New York.
20. Greene, M. C. L., & Mathieson, L. (1989). *The Voice and its Disorders*. London: Whurr Publishers
21. Sapienza, C., & Ruddy, B. H. (2013). *Voice Disorders Workbook*, II Edition. Plural Publishing, San Diego
22. Stemple, J. C., Glaze, L., & Klaben, B. (2010). *Clinical Voice Pathology: Theory and Management*, IV Edition. Plural Publishing, San Diego
23. Benninger, M. S., & Murry, T. (2008). *The Singer's Voice*. Plural Publishing, San Diego
24. Brown, O.L. (1996). *Discover your voice*. San Diego: Singular Publishing Group
25. Davies, D. G., & Jahn, A. F. (1998). *Care of the Professional Voice: A Management Guide for Singers, Actors and Professional Voice Users*. Butterworth-Heinemann, Oxford.

## DSCT 3.2: Diagnostic Audiology: Behavioral Tests: 133BLP012

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
3.2	DSCT 3.2	Theory	04	04	56 hours	2 hours	40	60	100

### Course outcome

After completing this course, the student will be able to

- Choose individualized test battery for assessing cochlear pathology, retro cochlear pathology, functional hearing loss, CAPD, vestibular dysfunctions, tinnitus and hyperacusis
- Independently run the tests and interpret the results to identify the above conditions and also use the information for differential diagnosis
- Make adjustments in the test parameters to improve sensitivity and specificity of tests.
- Make appropriate diagnosis based on the test results and suggest referrals.

### Unit 1: Overview of Behavioral Diagnostic Tests-12 Hrs

- 1.1 Introduction to diagnostic audiology: characteristics of a diagnostic test, difference between screening and diagnostic test, functions of a diagnostic test in Audiology.
- 1.2 Need for test battery approach in auditory diagnosis and integration of results of audiological tests, cross-check principle.
- 1.3 Concept of clinical decision analysis (sensitivity, specificity, true positive, true negative, false positive, false negative, and hit rate).
- 1.4 Definition of behavioral and physiological tests and their characteristics in diagnostic audiology.
- 1.5 Theories and physiological bases of recruitment.
- 1.6 Theories and Physiological bases of auditory adaptation.
- 1.7 Clinical Indications for administering audiological tests to identify cochlear pathology
- 1.8 Clinical Indications for administering audiological tests to identify retrocochlear pathology

### Unit 2: Cochlear, Retrocochlear Pathology and Pseudohypacusis-14 hrs

- 2.1 Tests to identify cochlear and retrocochlear pathology
  - a. ABLB, MLB
  - b. SISI and its variants
  - c. STAT, TDT and its modification
  - d. Bekesy audiometry
  - e. Brief tone audiometry
  - f. PIPB function
  - g. HINT, Quick SIN
  - h. Glycerol test
  - i. Psychoacoustic tuning curves and TEN test



j. Others

## 2.2 Tests to diagnose functional hearing loss

- a. Behavioral and clinical indicators of functional hearing loss
- b. Pure tone tests including tone in noise test, Stenger test, BADGE, Puretone DAF
- c. Speech tests including Lombard test, Stenger test, lip-reading test, Low level PB word test, Yes-No test, DAF test.
- d. Identification of functional hearing loss in children: such as Swinging story test, Pulse tone methods

## 2.3 Psycho-social aspects related to pseudohypacusis

### Unit 3: **Central Auditory Processing Disorders- 14Hrs**

3.1 Central auditory processing: definition, different behavioral processes.

3.2 Behavioral and clinical indicators of central auditory processing disorders Bottle neck and subtlety, redundancy principles and their clinical interpretations.

3.3 Screening techniques for CAPD.

3.4 Tests to detect central auditory processing disorders.

- a. Monoaural low redundancy tests - Filtered speech tests, Time compressed speech test, Speech-in-noise test, SSI with ICM,
- b. Dichotic speech tests – Dichotic digit test,
- c. Staggered spondaic word test, Dichotic CV test, SSI with CCM, Competing sentence test,
- d. Binaural interaction tests – RASP, BFT, SWAMI, and MLD
- e. Tests of Temporal processing – Pitch pattern test, Duration pattern tests, Gap detection test, TMTF
- f. Screening test for auditory processing
- g. Overview about CAPD in older adults
- h. Review of CAPD tests with reference to site of lesion (Brainstem, cortical, hemispheric and interhemispheric lesion)

3.5 Diagnostic criteria for CAPD

3.6 Variables influencing the assessment of central auditory processing:

- a. Procedural variables
- b. Subject variables

### Unit 4: **Vestibular and Tinnitus Assessment -12Hrs**

4.1 Vestibular assessment

- a. Overview of balance functioning
- b. Overview of nystagmus, giddiness, vertigo
- c. Behavioral tests to assess vestibular functioning (Fukuda stepping test, Tandem gait test, Finger nose pointing, Romberg test, sharpened Romberg test, head thrust test and head impulse test)

4.2 Tests to assess Tinnitus and Hyperacusis

- a. Overview of Tinnitus and Hyperacusis
- b. Pitch matching,

- c. Loudness matching,
- d. Residual inhibition,
- e. Feldmann masking curves
- f. Johnson Hyperacusis Dynamic Range Quotient

#### 4.3 Variables influencing the assessment:

- a. Procedural variable
- b. Subject variables

### **Practicum**

1. Administer ABLB, MLB and prepare laddergram (ABLB to be administered by blocking one ear with impression material)
2. Administer classical SISI on 3 individuals and note down the scores
3. Administer tone decay tests (classical and its modifications) and note down the results (at least 3 individuals)
4. Plot PIPB function using standardized lists in any 5 individuals
5. Administer the tests of functional hearing loss (both tone based, and speech based) by asking subject to malingering and having a yardstick of loudness.
6. Administer CAPD test battery to assess different processes on 3 individuals and note down the scores
7. Administer Fukuda stepping test, Tandem gait test, Finger nose pointing, Romberg test, Sharpened Romberg test, Dix-Hallpike test, Log-roll test on 5 of the individuals each and note down the observations.
8. Estimate the pitch and loudness of tinnitus in 2 persons with tinnitus (under supervision). Assess the residual inhibition in them.
9. Plot Feldman masking curves for a hypothetical case
10. Administer Johnson Hyperacusis Dynamic Range Quotient on any 2 of the individuals and note down the scores.

### **References**

#### **Common**

1. Gelfand, S. A. (2009). *Essentials of Audiology*. Thieme.
2. Hall, J. W., & Mueller, H. G. (1996). *Audiologists' Desk Reference: Diagnostic audiology principles, procedures, and protocols*. Cengage Learning.
3. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology* (6th revised North American edition). Philadelphia: Lippincott Williams and Wilkins.
4. Martin, F. N., & Clark, J. G. (2014). *Introduction to Audiology* (12 edition). Boston: Pearson.
5. Roeser, R. J., Valente, M., & Hosford-Dunn, H. (2007). *Audiology: Diagnosis*. Thieme.
6. Stach, B. A. (2010). *Clinical audiology: an introduction* (2nd ed). Clifton Park, NY: Delmar Cengage Learning.

## OEC 3.1: Speech Sound Disorders:133BLP0501

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
3.3	OEC 3.1	Theory	03	03	42 hours	2 hours	40	60	100

### Course outcome

After completing this course, the student will be able to

- Describe normal speech sound development and characterization of individuals with speech sound disorders.
- Perform phonological analysis and assessment of speech sound disorders.
- Plan intervention for individuals with speech sound disorders.

### Unit 1: Basic Concepts of Phonology and Distinctive Features and Acoustic Features-12Hrs

- 1.1 Fundamentals of articulatory phonetics – phonetic description of vowels & consonants.
- 1.2 Phonology & phonological theories – generative phonology, natural phonology.
- 1.3 Phonology & phonological theories – non-linear phonology, optimality theory.
- 1.4 Methods to study speech sound acquisition – diary studies, cross sectional studies and longitudinal studies.
- 1.5 Speech sound acquisition
  - a. Birth to one year (development of infant speech perception, early speech production).
  - b. One to two years (consonant inventories, influence of phonological knowledge on vocabulary acquisition).
  - c. Two to five years (growth of phonetic, phonemic, phonotactic inventory – consonants, clusters, phonological patterns).
  - d. Above five years (speech sound mastery and development of literacy – phonological awareness).
  - e. Factors influencing speech sound acquisition
- 1.6 Acoustics of speech sounds
- 1.7 Speech intelligibility, factors affecting speech intelligibility, assessment of speech intelligibility
- 1.8 Co-articulation: types and effect.
- 1.9 Phonological development in bilingual children-Phonological development in Indian languages.

### Unit 2: Assessment of Speech Sound Disorders-14 Hrs

- 2.1 Current concepts in terminology and classification of speech sound disorders
  - a. Organically based speech sound disorders, childhood apraxia of speech.
  - b. Speech sound disorders of unknown origin, classification by symptomatology.
- 2.2 Factors related to speech sound disorders
  - a. Structure and function of speech & hearing and oro-sensory mechanisms.
  - b. Cognitive – linguistic, psychosocial, and social factors.
  - c. Metalinguistic factors related to speech sound disorders.

- 2.3 Introduction to assessment procedures: aims of assessment, screening, and comprehensive assessment.
- 2.4 Speech sound sampling procedures - issues related to single word and connected speech samples: imitation and spontaneous speech samples, contextual testing, recording of speech samples.
- 2.5 Review of tests in Indian and other languages - Single word articulation tests, deep articulation of articulation, and computerized tests of phonology, Influence of language and dialectal variations in assessment.
- 2.6 Transcription of speech sample - transcription methods –IPA and extension of IPA; broad and narrow transcription.
- 2.7 Independent analyses – phonetic inventory, phonemic inventory and phonotactic inventory (utility of independent analysis for analysis of speech of young children and children with severe speech sound disorders).
- 2.8 Relational analyses – SODA, pattern analysis, (distinctive features, phonological process analysis).
- 2.9 Speech sound discrimination assessment, phonological contrast testing and stimulability testing.

### **Unit 3: Management of Speech Sound Disorders-I 12 Hrs**

- 3.1 Determining the need for intervention – speech intelligibility and speech severity assessment.
- 3.2 Factors influencing target selection-stimulability, frequency of occurrence, developmental appropriateness, contextual testing, and phonological process analysis.
- 3.3 Basic considerations in therapy – target selection, basic framework for therapy, goal attack strategies, organizing therapy sessions, individual vs. group therapy.
- 3.4 Treatment continuum-establishment, generalization, and maintenance; measuring clinical change.
- 3.5 Facilitation of generalization.
- 3.6 Maintenance and termination from therapy.
- 3.7 Motor-based treatment approaches – Principles of motor learning.
- 3.8 Discrimination/ear training and sound contrast training.
- 3.9 Establishing production of target sound – imitation, phonetic placement, successive approximation, context utilization.
- 3.10 Traditional approach, contextual/sensory-motor approaches.
- 3.11 General guidelines for motor-based treatment approaches.
- 3.12 Use of technology in articulation correction

### **Unit 4: Management of Speech Sound Disorders -II 14Hrs**

- 4.1 Core vocabulary approach.
- 4.2 Introduction to linguistically based treatment approaches- Distinctive feature therapy.
- 4.3 Minimal pair contrasts therapy.
- 4.4 Metaphon therapy, Cycles approach.
- 4.5 Broad-based language approaches.
- 4.6 General guidelines for linguistically based approaches.
- 4.7 Phonological awareness and phonological disorders.

- 4.8 Phonological awareness intervention for preschool children.
- 4.9 Adapting intervention approaches to individuals from culturally and linguistically diverse backgrounds.
- 4.10 Role of family in intervention for speech sound disorders.

### **Practicum**

1. List the vowels and consonants in your primary language and provide phonetic and acoustic descriptions for the speech sounds.
2. Identify the vowels and consonants of your language on the IPA chart and practice the IPA symbols by transcribing 25 words.
3. Make a list of minimal pairs (pairs of words which differ by only one phoneme) in English.
4. Make a list of minimal pairs in any language other than English.
5. Identify the stages of speech sound acquisition by observations from videos of children from birth to 5 years of age.
6. Record the speech of a two-year-old typically developing child, transcribe and analyze the speech sample.
7. Record the speech of one typically developing child from 3-5 years of age (include single word and connected speech samples), transcribe the sample, and perform phonological assessment.
8. Analyze transcribed speech samples of typically developing children – practice independent and relational analysis.
9. Practice instructions for phonetic placement of selected sounds.
10. Develop a home plan with activities for any one section of phonological awareness in English and in one Indian language.

### **Reference**

#### **Common**

1. Bernthal, J.E., Bankson, N.W., & Flipsen, P. (2013). *Articulation and phonological disorders*. (7th Ed.). Boston, MA: Pearson.
2. Dodd, B. (2013). *Differential diagnosis and treatment of children with speech disorder*. (2nd Ed). NJ: Wiley.
3. Rout, N (Ed)., Gayathri, P., Keshree, N and Chowdhury, K (2015). *Phonics and Phonological Processing to Develop Literacy and Articulation; A Novel Protocol*. A publication by NIEPMED, Chennai. Freely downloadable from <http://niepmd.tn.nic.in/publication.php>. ISBN 978- 81-928032-9-5
4. Vasanta, D. (2014). *Clinical applications of phonetics and phonology*. ISHA Monograph. Vol 14, No. 1. Indian Speech & Hearing Association.
5. Velleman, S. L (2003). *Resource guide for Childhood Apraxia of Speech*. Delmar/Thomson Learning.
6. Williams, A., McLeod, S., & McCauley, R. (2010). *Interventions for speech sound disorders in children*. Baltimore: Brookes.

#### **Unit 1**

7. Ball, M. J. (2004). *Phonetics for speech Pathology*. 2<sup>nd</sup> ed. London. Whurr Publishers Ltd
8. Bauman-Waengler, J. (2012). *Articulatory and Phonological Impairments: A Clinical Focus* 4th

ed. Boston : Pearson Education – Chapters 1- 5

9. Bernthal, J.E. & Bankson, Nicholas W. Flipsen (2009) Articulation and Phonological Disorders: Speech Sound Disorders in Children, 6th ed. Boston, Pearson Education. Chapters 1-3
10. Edwards, H T. (2003). Applied Phonetics: Sounds of American English. 3rd Edn. Delmar, Singular. - Chapter 1, 3 to 13.
11. Ladefoged & Maddison (2008). The sounds of worlds languages. Cambridge, Blackwood Publisher Inc
12. Pena Brooks, A. & Hegde, M N (2000). Assessment and treatment of Articulation and phonological disorders in children: A dual level text. Austin: Texas, pro.ed – Chapters 2 & 3.
13. Kent, R.D. & Read, C. (2002). The Acoustic analysis of speech, 2<sup>nd</sup> Ed. Delmar, Singular Publisher.
14. Raphael, L J., Borden, G. J. & Harris,(2011). Speech Science Primer. 6<sup>th</sup> ed. Baltimore. Lippincott Williams & Wilkins

### **Unit 2**

15. Deepa Anand (2010). Restandardization of Kannada Articulation test. Dissertation submitted to All India Institute of Speech and Hearing, Mysore
16. Bleile, K.M. (2004). Manual of articulation and phonological disorders. Delmar: Centage Learning Diego: Singular Publishing Group.
17. Lowe, R.J. (1994). Phonology. Baltimore: Williams & Wilkins.

### **Unit 3**

18. Bernthal, J.E. & Bankson, Nicholas W. Flipsen (2009) Articulation and Phonological Disorders: Speech Sound Disorders in Children, 6th ed. Boston, Pearson Education. Chapter5
19. Bleile, K.M. (2004). Manual of articulation and phonological disorders. Delmar: Centage Learning
20. Gordon- Brannan & Weiss, C E. (2007). Clinical Management of Articulatory and phonological disorders. 3<sup>rd</sup> ed. Baltimore. Lippincott Williams & Wilkins . Chap- 6-7
21. Pena Brooks, A. & Hegde, M. N. (2000). Assessment and treatment of articulation and phonological disorders in children Austin: Texas, pro.ed– Chapter 6.

### **Unit 4**

22. Bernthal, J.E. & Bankson, Nicholas W. Flipsen (2009). Articulation and Phonological Disorders: Speech Sound Disorders in Children, 6<sup>th</sup> ed. Boston, Pearson Education. Chapters 6-7
23. Gordon- Brannan & Weiss, C E. (2007). Clinical Management of Articulatory and phonological disorders. 3<sup>rd</sup> ed. Baltimore. Lippincott Williams & Wilkins. Chap 8-9
24. Brooks, A. & Hegde, M N (2000). Assessment and treatment of articulation and phonological disorders in children: A dual level text. Austin: Texas, pro.ed– Chapters 7 & 8.

### **DSCP 3.1: Clinical (Speech Language Pathology): 133BLP013**

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
3.4	DSCP 3.1	Practical	02	04	56 hours	2 hours	25	25	50

**General considerations:**

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech –language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/logbook based on clinical reports/recordings, etc.), and do (perform on patients/client contacts) the following:

**Know:**

1. Procedures to obtain a speech language sample for speech & language assessment from children of different age groups such as, preschoolers, kindergarten, primary school, and older age groups.
2. Methods to examine the structures of the oral cavity/organs of speech.
3. The tools to assess language abilities in children (with hearing impairment, specific language impairment & mixed receptive language disorder).
4. Development of speech sounds in vernacular and linguistic nuances of the language.

**Know-how:**

1. To evaluate speech and language components using informal assessment methods.
2. To administer at least two standard tests for childhood language disorders.
3. To administer at least two standard tests of articulation/ speech sounds.
4. To assess speech intelligibility.

**Show:**

1. Analysis of language components – Form, content & use – minimum of 2samples.
2. Analysis of speech sounds at different linguistic levels including phonological processes – minimum of 2 samples.
3. Transcription of speech language samples – minimum of 2samples.
4. Analyze differences in dialects of the local language.

**Do:**

1. Case history - minimum of 5 individuals with speech & language disorders.
2. Oral peripheral examination - minimum of 5 individuals.
3. Language evaluation report – minimum of 5.
4. Speech sound evaluation report – minimum of 5.

### DSCP 3.2: Clinical (Audiology):133BLP014

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
3.5	DSCP 3.2	Practical	02	04	56 hours	2 hours	25	25	50

#### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/logbook), and do (perform on patients/ client contacts) the following:

#### Know:

1. Methods to calibrate audiometer.
2. Materials commonly employed in speech audiometry.
3. Calculation pure tone average, % of hearing loss, minimum and maximum masking levels.
4. Different types of hearing loss and its common causes

#### Know-how:

1. To obtain detailed case history from clients or parents/guardians.
2. To carryout commonly used tuning fork tests.
3. To administer pure tone audiometry including appropriate masking techniques on adults using at least techniques.
4. To administer tests to find out speech reception threshold, speech identification scores, most comfortable and uncomfortable levels on adults.

#### Show:

1. Plotting of audiograms with different degree and type with appropriate symbols- audiograms per degree and type
2. Detailed case history taken and its analysis
3. Calculation degree, type and percentage of hearing loss on 5 sample conditions

#### Do:

1. Case history on at least 5 adults and 3 children with hearing disorders
2. Tuning fork test on at least 2 individuals with conductive and 2 individuals with sensorineural hearing loss
3. Pure tone audiometry with appropriate masking on 5 individuals with conductive, 5 individuals SN hearing loss and 3 individuals with unilateral/asymmetric hearing loss.



**Course 3.6 (AECC-3.1)-033ENG041**

**English-3**

As per university Guidelines

**Course 3.7 (AECC-3.2)- 033KAN041**

**MIL-3**

As per university Guidelines

**Course 3.8 (SEC-VB. 3.1)**

NSS/visual arts

As per university Guidelines

**Course 3.9 (SEC-SB. 3.1)**

AI

As per university Guidelines

**Scheme of Practical Examination (distribution of marks): 25 marks for Semester end examination**

**1. Practicum – 10 Marks**

**2. Viva- 15 Marks**

**Total 25 marks**

**Note: Same Scheme may be used for IA (Formative Assessment) examination**

**Details of Formative assessment (IA)for DSCC theory/OEC: 40% weight age for total marks**

Type of Assessment	Weight age	Duration	Commencement
Written test-1	15%	1 hr	8 <sup>th</sup> Week
Written test-2	15%	1 hr	12 <sup>th</sup> Week
Case study / Assignment / Field work / Project work/ Activity	10%	-----	--
Total	40% of the maximum marks allotted for the paper		

**GENERAL PATTERN OF THEORYQUESTION PAPER FOR DSCC/ OEC  
(60 marks for semester end Examination with 2 hrs duration)**

**Part-A**

1. Question number 1-06 carries 2 marks each. Answer any 05 questions :10marks

**Part-B**

2. Question number 07- 11 carries 05Marks each. Answer any 04questions : 20 marks

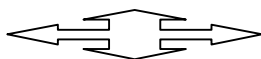
**Part-C**

3. Question number 12-15 carries 10 Marks each. Answer any 03 questions : 30 marks

(Minimum 1 question from each unit and 10 marks question may have sub questions for 7+3 or 6+4 or 5+5 if necessary)

**Total: 60 Marks**

**Note: Proportionate weightage shall be given to each unit based on number of hours prescribed.**



## Semester –IV

### DSCT 4.1: Fluency and Its Disorders:134BLP011

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
4.1	DSCT 4.1	Theory	04	04	56 hours	2 hours	40	60	100

#### Course outcome

After completion of the course, the student will be able to

- Understand the characteristics of fluency and its disorders
- Evaluate and diagnose fluency disorders
- Learn about the techniques for the management of fluency disorders

#### Unit 1: Introduction to Fluency and Stuttering-14Hrs

1.1 Fluency: definition, dimensions, development, factors influencing fluency

- a. Fluency/disfluency/Dysfluency
- b. Stuttering
- c. Definition, epidemiological findings, prevalence and incidence
- d. Stuttering: characteristics

1.2 Nature of Stuttering

- a. Consistency, adjacency, and Lee effect
- b. Situational variability
- c. stuttering and heredity

1.3 Development of stuttering

- a. Bloodstein's phases,
- b. Van Riper's tracks,
- c. Conture's classification,
- d. Guitar's classification

#### Unit 2: Theories and Assessment of Stuttering-14Hrs

2.1 Introduction to theories of stuttering – organic vs functional

- a. Cerebral dominance
- b. Diagnosogenic theory
- c. Learning theories
- d. Demands – capacities model

2.2 Brief overview of recent theoretical advances

- a. Covert repair hypothesis
- b. EXPLAN theory
- c. Neuroscience model: DIVA model
- d. Communication – Emotional model

2.3 Assessment of stuttering and associated problems

- a. Tools for assessment of stuttering
- b. Assessment of stuttering in children

c. Assessment of stuttering in adults

## 2.4 Differential diagnosis of developmental stuttering from other fluency disorders

### Unit 3: **Management of Stuttering-12 hrs**

#### 3.1 Counselling

#### 3.2 Therapy for children who stutter: Direct/Indirect approaches

- a. Preventive, Prescriptive and Comprehensive treatment program
- b. Use of analogies
- c. Time out and Response cost
- d. Lidcombe program,
- e. Parent – child interaction therapy

#### 3.3 Therapy for adults who stutter stuttering modification and fluency shaping approaches and the rationale

- a. Prolonged speech therapy
- b. Air flow-based therapy techniques
- c. Shadowing
- d. Habit rehearsal techniques
- e. DAF
- f. Masking
- g. Camper-down program
- h. Systematic Desensitization
- i. cognitive- behavior therapy for adults who stutter

#### 3.4 Steps/Sequence of therapy

- a. MIDVAS
- b. Establishment, transfer, and maintenance

#### 3.5 Relapse and recovery from stuttering

#### 3.6 Measurement of therapy progress & naturalness rating

#### 3.7 Group therapy

### Unit 4: **Other Fluency Disorders -12Hrs**

#### 4.1 Cluttering: definition, characteristics, assessment and management

#### 4.2 Neurogenic stuttering/SAAND: definition, characteristics, assessment and management

#### 4.3 Psychogenic stuttering: definition, characteristics, assessment and management

### **Practicum**

1. Assess the rate of speech in 5 normal adults.
2. Record and analyze the supra segmental features in typically developing children between 2 and 5years.
3. Record audio visual sample of 5 typically developing children and 5adults for fluency analysis.
4. Listen/see samples of normal non fluency and stuttering in children and document the differences.
5. Identify the types of dysfluencies in the recorded samples of adults with stuttering.
6. Instruct and demonstrate the following techniques: Airflow, prolongation, easy onset shadowing techniques.
7. Record 5 speech samples with various delays in auditory feedback and analyze the differences.
8. Administer SPI on 5 typically developing children.

9. Administer SSI on 5 adults with normal fluency.
10. Administer self-rating scale on 10 adults with normal fluency.

## References

### Common

1. Bloodstein, O., & Ratner, N. B. (2008). *A Handbook on Stuttering* (6th Ed.). Clifton Park, NY, Thomson Delmer Learning.
2. Guitar, B. (2014). *Stuttering-An Integrated Approach to its Nature and Treatment*. 4th Ed. Baltimore, Lippincott Williams & Wilkins.
3. Hegde, M. N. (2007). *Treatment Protocols for Stuttering*. CA Plural Publishing.
4. Howell, P. (2011). *Recovery from Stuttering*. New York, Psychology Press.
5. Packman, A., & Attanasio, J.S. (2004). *Theoretical Issues in Stuttering*. NY, Psychology Press.
6. Rentschler, G. J. (2012). *Here`s How to Do: Stuttering Therapy*. San Diego, Plural Publishing.
7. Ward, D. (2006). *Stuttering and Cluttering: Frameworks for Understanding & Treatment*. NY, Psychology Press.
8. Yairi, E., & Seery, C. H. (2015). *Stuttering - Foundations and Clinical Applications*. 2nd Ed. USA, Pearson Education, Inc.

### Unit 1

9. Bloodstein, O., & Ratner, N. B. (2008). *A handbook on stuttering* (6<sup>th</sup>Ed.). Clifton Park, NY: Thomson Delmer Learning.
10. Conture, E.G. (2001). *Stuttering: its nature, diagnosis, and treatment*. Boston, Allyn & Bacon.
11. Guitar, B. (2014). *Stuttering-An integrated approach to its nature and treatment*. 4<sup>th</sup> Ed. Lippincott Williams and Wilkins, Baltimore.
12. Manning, W. H. (2010). *Clinical decision making in Fluency disorders*. 3<sup>rd</sup> Ed. Delmer, Cengage learning.
13. St. Louis (1986). *Atypical stuttering*. Orlando: Academic Press.
14. Van Riper, C. (1982). *Nature of stuttering*. 2<sup>nd</sup> Ed. New Jersey: Prentice HallInc.
15. Yairi, E & Seery, C.H. (2015). *Stuttering-Foundations and clinical applications* 2<sup>nd</sup> Ed. Pearson Education, Inc, USA

### Unit 2

16. Bloodstein, O., & Ratner, N. B.(2008). *A handbook on stuttering* (6<sup>th</sup> Ed.). Clifton Park, NY: Thomson Delmer Learning.
17. Bothe, A.K. (2004). *Evidence-based treatment of stuttering*. Mahwah, NJ: Earlebaum Associates Inc.
18. Guitar, B. (2014). *Stuttering-An integrated approach to its nature and treatment*. 4<sup>th</sup> Ed. Lippincott Williams and Wilkins, Baltimore.
19. Manning, W. H. (2010). *Clinical decision making in Fluency disorders*. 3<sup>rd</sup> Ed. Delmer, Cengage learning.
20. Yairi, E & Seery, C.H. (2015). *Stuttering-Foundations and clinical applications* 2<sup>nd</sup> Ed. Pearson Education, Inc, USA.

### Unit 3

21. Bloodstein, O., & Ratner, N. B.(2008). *A handbook on stuttering* (6<sup>th</sup> Ed.). Clifton Park, NY: Thomson Delmer Learning.
22. Bothe, A.K. (2004). *Evidence-based treatment of stuttering*. Mahwah, NJ: Lawrence Earlebaum Assoc

Inc.

23. Guitar, B. (2014). Stuttering-An integrated approach to its nature and treatment. 4<sup>th</sup> Ed. Lippincott Williams and Wilkins, Baltimore.
24. Hegde, M.N., & Freed D. (2011). Assessment of communication disorders in adults. Chapter VII., Plural publishing, Oxford, Brisbane.
25. Manning, W. H. (2010). Clinical decision making in Fluency disorders. 3<sup>rd</sup> Ed. Delmer, Cengage learning.
26. Yairi, E & Seery, C.H. (2015). Stuttering-Foundations and clinical applications 2<sup>nd</sup> Ed. Pearson Education, Inc, USA

#### **Unit 4**

27. Guitar, B. (2014). Stuttering-An integrated approach to its nature and treatment. 4<sup>th</sup> Ed. Lippincott Williams and Wilkins, Baltimore.
28. Hegde, M.N., & Freed D. (2011). Assessment of communication disorders in adults. Chapter VII., Plural publishing, Oxford, Brisbane.
29. Manning, W. H. (2010). Clinical decision making in Fluency disorders. 3<sup>rd</sup> Ed. Delmer, Cengage learning.
30. Ward, D., & Scott, K.S. (2011) Cluttering: A handbook of research, intervention, and education. Hove, UK, Psychology Press.
31. Yairi, E & Seery, C.H. (2015). Stuttering-Foundations and clinical applications 2<sup>nd</sup>Ed. Pearson Education, Inc, USA

## DSCT 4.2: Diagnostic Audiology: Physiological Tests:134BLP012

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
4.2	DSCT 4.2	Theory	04	04	56 hours	2 hours	40	60	100

### Course outcome

After completing this course, the students will be able to

- Justify the need for using the different physiological tests in the audiological assessment
- Independently run the tests and interpret the results to detect the middle ear, cochlear and retro cochlear pathologies and also differentially diagnose
- Design tailor-made test protocols in immittance, AEP's and OAE's as per the clinical need
- Make appropriate diagnosis based on the test results and suggest referrals.

### Unit1: **ImmittanceEvaluation-12Hrs**

- 1.1 Introduction: Definition of a physiological test, List of physiological tests in Audiology, overview of their clinical significance
- 1.2 Principle of immittance evaluation: Concept of impedance and admittance, their components, method to calculate the total impedance/admittance, resonant frequency, concept of acoustic impedance, justification for using admittance in clinical measurements, justification for using 226Hz probe tone
- 1.3 Instrumentation
- 1.4 Tympanometry: definition, measurement procedure, response parameters (tympanometric peak pressure, static admittance, gradient/tympanometric width), their measurement and normative, classification of tympanogram, clinical significance of tympanometry
- 1.5 Eustachian tube functioning tests of tympanometry: overview on pressure equalization function of ET, Valsalva, Toynbee, William's pressure swallow, Inflation-deflation test.
- 1.6 Overview on multicomponent and multi-frequency tympanometry
- 1.7 Reflexometry: Definition, acoustic reflex pathway, measurement procedure, concept of ipsilateral and contralateral acoustic reflexes, Jerger box pattern, clinical applications of acoustic reflexes, Reflex decay test.
- 1.8 Overview on wide band reflectance and wide band tympanometry

### Unit 2: **Auditory Brainstem Response -14Hrs**

- 2.1 Introduction and classification of AEPs
- 2.2 Instrumentation
- 2.3 Principles of AEP recording techniques: Stimulus related, acquisition related: Near vs far field recording, Electrode Impedance, Electrode montage (Dipole orientation, Scalp distribution), Common mode rejection, Pre- amplification, Filtering, Time locked acquisition, Artifact rejection windowing, Averaging.
- 2.4 Introduction to Auditory brainstem responses (ABR), generators
  - a. Protocol and procedure of recording Auditory brainstem response
  - b. Factors affecting auditory brainstem responses

- c. Analysis of ABR and clinical inferences
- d. Clinical applications of ABR

### Unit 3: **Middle and Long Latency Auditory Evoked Potentials-12 Hrs**

- 3.1 Introduction to middle and late latency auditory potentials
  - a. Generators of MLR, ALLR and
  - b. other late auditory potentials (P300 and MMN, P600, N400, T-complex, CNV)
  - c. Protocol for recording MLR, ALLR, P300 and MMN
  - d. Analysis of MLR, LLR, P300 and MMN
  - e. Factors affecting MLR and ALLR
  - f. Interpretation of results and their clinical applications of MLR and cortical auditory evoked potentials

### Unit 4: **Otoacoustic Emissions and Tests of Vestibular functioning - 14Hrs**

- 4.1 Introduction to Otoacoustic emissions with a brief note on history
  - a. Origin and classification of OAEs
- 4.2 Instrumentation
  - a. Procedure of OAE measurement: SOAE, TEOAEs, and DPOAEs
  - b. Interpretation of results: SOAE, TEOAEs, and DPOAEs
  - c. Factors affecting OAEs: SOAE, TEOAEs, and DPOAEs
  - d. Clinical applications of OAEs: SOAE, TEOAEs, and DPOAEs
  - e. Contralateral suppression of OAEs and its clinical implications
- 4.3 Overview on structure and function of vestibular system
  - a. Overview on other systems involved in balance including VOR and VSR
  - b. Signs and Symptoms of vestibular disorders
  - c. Team in the assessment and management of vestibular disorders
  - d. Tests for Assessment
  - e. Electronystagmography and its clinical significance: Measurement procedure and interpretation: tests for peripheral and central vestibular function
  - f. Overview on VNG
  - g. VEMP: c-VEMP and o-VEMP, recording procedure, response interpretation and clinical inferences

### **Practicum**

1. Measure admittance in the calibration cavities of various volumes and note down the observations
2. Calculate Equivalent ear canal volume by measuring static admittance in an uncompensated tympanogram (10ears)
3. Do tympanogram in the manual mode and measure peak pressure, peak admittance and ear canal volume manually using cursor (10ears).
4. Measure gradient of the tympanogram (10ears)
5. Administer Valsalva and Toynbee and William's pressure swallow test(5 ears)
6. Record acoustic reflex thresholds in the ipsi and contra modes, (10ears)
7. Plot Jerger box pattern for various hypothetical conditions that affect acoustic reflexes and interpret the pattern and the corresponding condition.
8. Carry out Acoustic reflex decay test and quantify the decay manually using cursor (5individuals).
9. Trace threshold of ABR (in 5 dB nHL steps near the threshold) for clicks and tone bursts of different frequencies (2 persons) and draw latency intensity function.
10. Record ABR using single versus dual channels and, note down the differences
11. Record ABR at different repetition rates in 10/sec step beginning with 10.1/11.1 per second. Latency-



- repetition rate function needs to be drawn.
12. Record with each of three transducers (HP, insert phones and bone vibrator) and polarities and draw a comparative table of the same. Students should also record with different transducers without changing in the protocol in the instrument and calculate the correction factor required.
  13. Record ASSR for stimuli of different frequencies and estimate the thresholds
  14. Record TEOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies. Note down the stimulus stability and the overall SNR (10ears).
  15. Record DPOAEs and note down the amplitude, SNR, noise floor and reproducibility at octave and mid-octave frequencies (10ears).

## References

### Common

1. Hall, J. W., & Mueller, H. G. (1996). *Audiologists' Desk Reference: Diagnostic audiology principles, procedures, and protocols*. Cengage Learning.
2. Hood, L. J. (1998). *Clinical Applications of the Auditory Brainstem Response*. Singular Publishing Group.
3. Hunter, L., & Shahnaz, N. (2013). *Acoustic Immittance Measures: Basic and Advanced Practice* (1 edition). San Diego, CA: Plural Publishing.
4. Jacobson, G. P., & Shepard, N. T. (2007). *Balance Function Assessment and Management* (1 edition). San Diego, CA: Plural Publishing Inc.
5. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology* (6th revised North American ed edition). Philadelphia: Lippincott Williams and Wilkins.
6. McCaslin, D. L. (2012) *Electronystamography/Videonystamography* (1 edition). San Diego: Plural Publishing.
7. Robinette, M. S., & Glatcke, T. J. (Eds.). (2007). *Otoacoustic Emissions: Clinical Applications* (3rd edition). New York: Thieme.

### Unit 1

8. Gelfand, S. A. (2009). *Essentials of Audiology*. Thieme
9. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology* (6th revised North American ed edition). Philadelphia: Lippincott Williams and Wilkins.
10. Musiek, F. E., & Rintelmann, W. F. (1999). *Contemporary Perspectives in Hearing Assessment*. Boston: Pearson.
11. Katz, J. (2014). *Handbook of Clinical Audiology* (Seventh, North American Edition edition). Philadelphia: LWW.
12. Popelka, G. R. (1981). *Hearing Assessment with the Acoustic Reflex*. Grune & Stratton.
13. Rintelmann, W. F. (Ed.). (1979). *Hearing Assessment*. Baltimore: Lippincott Williams and Wilkins.
14. Roeser, R. J., Valente, M., & Hosford-Dunn, H. (2007). *Audiology: Diagnosis*. Thieme.

### Unit 2

15. Hall, J. W. (2006). *New Handbook for Auditory Evoked Responses*(1edition). Boston, Mass: Pearson.
16. Hood, L. J. (1998). *Clinical Applications of the Auditory Brainstem Response*. Singular Publishing Group.
17. Hunter, L., & Shahnaz, N. (2013). *Acoustic Immittance Measures: Basic and Advanced Practice* (1 edition). San Diego, CA: Plural Publishing.
18. Jacobson, J. T. (1985). *The Auditory brainstem response*. College-Hill Press.
19. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology*

(6th revised North American ed edition). Philadelphia: Lippincott Williams and Wilkins.

20. Musiek, F. E., Baran, J. A., & Pinheiro, M. L. (1993). *Neuroaudiology: Case Studies* (1 edition). San Diego, Calif: Singular
21. Katz, J. (2014). *Handbook of Clinical Audiology* (Seventh, North American Edition edition). Philadelphia: LWW.

### **Unit 3**

22. Hall, J. W. (2006). *New Handbook for Auditory Evoked Responses* (1edition). Boston, Mass: Pearson.

### **Unit 4**

23. Hall, J. W. (2000). *Handbook of Otoacoustic Emissions*. Cengage Learning.
24. Hall, J. W., & Dhar, S. (2010). *Otoacoustic Emissions: Principles, Procedures, and Protocols* (1 edition). Plural Publishing Inc.
25. Robinette, M. S., & Glattke, T. J. (Eds.). (2007). *Otoacoustic Emissions: Clinical Applications* (3rd edition). New York: Thieme.
26. Biswas, A. (1995). *Clinical Audio-vestibulometry for Otolologists and Neurologists*. Bhalani Publishing House.
27. Jacobson, G. P., Newman, C. W., & Kartush, J. M. (1997). *Handbook of Balance Function Testing* (1 edition). San Diego, Calif: Singular.
28. Jacobson, G. P., & Shepard, N. T. (2007). *Balance Function Assessment and Management* (1 edition). San Diego, CA: Plural Publishing Inc.
29. McCaslin, D. L. (2012). *Electronystamography/Videonystagmography* (1 edition). San Diego: Plural Publishing.

## OEC 4.1: Rehabilitative Audiology:134BLP051

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
4.3	OEC 4.1	Theory	03	03	42 hours	2 hours	40	60	100

### Course outcome

#### After completion of this course, candidate should be able to:

- List various types of auditory training approaches available for individuals with hearing impairment.
- Explain various types of speech reading tests and speech reading training procedures available.
- Select appropriate management option/s for Tinnitus and Hyperacusis.
- Select appropriate management technique/s for children with special needs.
- Select appropriate management strategies for older adults with hearing impairment

### Unit 1: Auditory Learning - 14 Hrs

- 1.1 Definitions and historical background, Auditory training Vs Auditory learning
- 1.2 Role of audition in speech and language development in normal children and its application in education of individuals with hearing impairment
- 1.3 Factors affecting outcome of auditory learning
- 1.4 Methods of auditory training
- 1.5 Individual Vs Group auditory training
- 1.6 Auditory training activities
  - a. For individuals of different listening abilities /levels
  - b. Verbal vs. nonverbal material
  - c. For individuals Vs group activities
- 1.7 Computer based modules for auditory training

### Unit 2: Speech Reading - 14Hrs

- 1.1 Definitions and need of speech reading
- 1.2 Visibility of speech sounds – audiovisual perception vs. visual perception
- 1.3 Visual perception of speech by individuals with hearing impairment
- 1.4 Overview of speech reading tests, including Indian tests
  - a. Analytic Vs Synthetic tests
  - b. Adults Vs Children
- 1.5 Factors influencing speechreading.
- 1.6 Methods of speech reading training: analytical vs synthetic (including speech tracking)
- 1.7 Individual and group speech reading training
- 1.8 Speech reading activities
  - a. For adults and children
  - b. For individual vs. group activities

### Unit 3: Management of Tinnitus and Hyperacusis-12Hrs

- 3.1 Audiological management of tinnitus
  - a. Overview on Models related to tinnitus management
  - b. TRT, Masking, others
  - c. Devices used for management

## 3.2 Audiological management of hyperacusis

### **Unit 4: Management of Children with Special Needs and Rehabilitation of Older Adults with Hearing Impairment – 12 Hrs**

#### 4.1 Management of the deaf-blind child

#### 4.2 Management of other multiple disabilities like hearing loss associated with cognitive problems

#### 4.3 Overview on management of children with central auditory processing problems

#### 4.4 Special strategies used for rehabilitation of older adults with hearing impairment

#### 4.5 Communication strategies

- Anticipatory strategies
- Repair strategies

### **Practicum**

1. Evaluation of baseline auditory skills
2. Preparation of lesson plans for home training.
3. Carrying out auditory learning activities on clients with various degrees of hearing impairment
4. Use of communication strategies on clients
5. Observe the speech and language characteristics of individuals with hearing impairment
6. Knowledge on evaluating baseline auditory skills, lesson plan, concise report
7. Role play of auditory learning, speech reading, communication strategies
8. Observation of management of APD and Multiple disability
9. Observation of management of Tinnitus and Hyperacusis

### **References**

#### **Unit 1**

1. Alpiner. J.G & McCarthy. P.A (2000). Rehabilitative Audiology- Children & Adults. United States of America; Lippincott Williams &Wilkins.
2. Erber, N.P. (1982). Auditory training. Washington: A.G. Bell Association for the Deaf.
3. Flexer, C. (1994). Facilitating hearing and listening in young children. California: Singular Publishing Inc.
4. Griffiths, C. (1974). Proceedings of the international conference on auditory technique. Illinois: Charles C Thomas.
5. Montano, J.J. & Spitzer, J.B. (2014). Adult Audiologic Rehabilitation. 2<sup>nd</sup> Ed. Plural Publishing Inc.
6. Oyer, H.J. (1966). Auditory communication for the hard of hearing. New Jersey: Prentice Hall.
7. Schow, R.L. & Nerbonne, M.A. (1989). Introduction to Aural Rehabilitation. 2<sup>nd</sup> Ed. Allyn and Bacon
8. Tye-Murray, N. (2015). Foundations of Aural Rehabilitation. 4<sup>th</sup> ed. Cengage Learning
9. Valente. M & Hosford- Dunn. H (2008). Audiology treatment. 2<sup>nd</sup> Ed. Newyork: Thieme Medical Publishers, Inc.
10. Vernon. J. A (1998). Tinnitus- Treatment and Relief. United States of America; Allyn and Baccon

#### **Unit 2**

11. Berger, K.W. (1972). Speech reading: Principles and Methods. National Educational Press.
12. Montano, J.J. & Spitzer, J.B. (2014). Adult Audiologic Rehabilitation. 2<sup>nd</sup> Ed. Plural Publishing Inc.
13. Nielsen, H.B. & Kampp. E. (1974). Visual and audio-visual perception of speech. Denmark: Sixth Danavox Symposium.
14. O'Neill, J.J. & Oyer, H.J. (1961). Visual communication for the hard of hearing. New Jersey: Prentice Hall.

15. Plant, G. & Spens, K.E. (1995). *Profound deafness & speech communication*. London: Whurr Publishers Ltd.
16. Sanders, D.A. (1993). *Management of hearing handicap infants to elderly*. 3<sup>rd</sup> Ed. New Jersey: Prentice Hall.
17. Tye-Murray, N. (2015). *Foundations of Aural Rehabilitation*. 4<sup>th</sup> ed. Cengage Learning.

### **Unit 3**

18. Alpiner, J.G & McCarthy, P.A (2000). *Rehabilitative Audiology- Children & Adults*. United States of America; Lippincott Williams &Wilkins.
19. Erber, N.P. (1982). *Auditory training*. Washington: A.G. Bell Association for the Deaf.
20. Flexer, C. (1994). *Facilitating hearing and listening in young children*. California: Singular Publishing Inc.
21. Griffiths, C. (1974). *Proceedings of the international conference on auditory technique*. Illinois: Charles C Thomas.
22. Montano, J.J. & Spitzer, J.B. (2014). *Adult Audiological Rehabilitation*. 2<sup>nd</sup> Ed. Plural Publishing Inc.
23. Oyer, H.J. (1966). *Auditory communication for the hard of hearing*. New Jersey: Prentice Hall.
24. Schow, R.L. & Nerbonne, M.A. (1989). *Introduction to Aural Rehabilitation*. 2<sup>nd</sup> Ed. Allyn and Bacon
25. Tye-Murray, N. (2015). *Foundations of Aural Rehabilitation*. 4<sup>th</sup> ed. Cengage Learning.
26. Valente, M & Hosford- Dunn, H (2008). *Audiology treatment*. 2<sup>nd</sup> Ed. New York: Thieme Medical Publishers, Inc.
27. Vernon, J. A (1998). *Tinnitus- Treatment and Relief*. United States of America; Allyn and Baccon.

### **Unit 4**

28. Jastreboff, P.J & Hazell, J.W.P (2004). *Tinnitus retraining therapy-implementing the Neurophysiological model*. United Kingdom; Cambridge University Press
29. Montano, J.J. & Spitzer, J.B. (2014). *Adult Audiologic Rehabilitation*. 2<sup>nd</sup> Ed. Plural Publishing Inc.
30. Snow, J.B. (2004). *Tinnitus: Theory and Management*. BC Decker Inc.
31. Tyler, R (2000). *Tinnitus handbook*. Unites states of America, Singular Thomson Learning.
32. Bellis, T.J. (1996). *Assessment and management of central auditory processing disorders in educational setting: From Science to practice*. San Diego: Singular Publishing Co.
33. Johnson, C. E. (2012). *Introduction to Auditory Rehabilitation*. Pearson Education Inc.
34. Plant, G. & Spens, K.E. (1995). *Profound deafness & speech communication*. London: Whurr Publishers Ltd.
35. Trehur, S.E. & Shneider, B. (Ed) (1985). *Auditory development in infancy*. New York: Plenum Press.
36. Walsh, S.R. & Holzberg, R. (1981). *Understanding and educating the deaf-blind severely and profoundly handicapped-An international perspective*. Springfield: Charles C Thomas Publishers.

### DSCP 4.1: Clinical (Speech Language Pathology):134BLP013

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
4.4	DSCP 4.1	Practical	02	03	52 hours	2 hours	25	25	50

#### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester.
- After completion of clinical postings in Speech –language diagnostics, the student will know (concepts), know how (ability to apply), show (demonstrate in a clinical diary/logbook based on clinical reports/recordings, etc.), and do (perform on patients/client contacts) the following:

#### Know:

1. Speech & language stimulation techniques.
2. Different samples /procedures required to analyze voice production mechanism (acoustic/ aerodynamic methods / visual examination of larynx/ self-evaluation)
3. Different samples /procedures required to analyze speech production mechanism in children with motor speech disorders.

#### Know-how:

1. To administer at least two more (in addition to earlier semester) standard tests for childhood language disorders.
2. To administer at least two more (in addition to earlier semester) standard tests of articulation/ speech sounds.
3. To set goals for therapy (including AAC) based on assessment/test results for children with language and speech sound disorders.
4. To record a voice sample for acoustic and perceptual analysis.
5. To assess parameters of voice and breathing for speech.
6. Assessment protocol for children with motor speech disorders including reflex profile and swallow skills.
7. Counselling for children with speech-language disorders.

#### Show:

1. Acoustic analysis of voice – minimum of 2 individuals with voice disorders.
2. Simple aerodynamic analysis - minimum of 2 individuals with voice disorders.
3. Self-evaluation of voice – minimum of 2 individuals with voice disorders.
4. Informal assessment of swallowing – minimum of 2 children.
5. Assessment of reflexes and pre linguistic skills - minimum of 2 children.
6. Pre –therapy assessment and lesson plan for children with language and speech sound disorders - minimum of 2 children each.

#### Do:

1. Case history - minimum of 2 individuals with voice disorders.
2. Case history - minimum of 2 children with motor speech disorders
3. Oral peripheral examination- minimum of 5 children

4. Apply speech language stimulation/therapy techniques on 5 children with language disorders (with hearing impairment, specific language impairment & mixed receptive language disorder)/speech sound disorders – minimum of 5 sessions of therapy for each child.
5. Exit interview and counselling - minimum of 2 individuals with speech language disorders.

## DSCP 4.2: Clinical (Audiology):134BLP014

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
4.5	DSCP 4.2	Practical	02	03	52 hours	2 hours	25	25	50

### General considerations:

- Exposure is primarily aimed to be linked to the theory courses covered in the semester, however, not just limited to these areas.
- After completion of clinical postings in auditory diagnostics and auditory rehabilitation, the student will Know (concept), know how (ability to apply), show (demonstrate in a clinical diary/logbook), and do (perform on patients/ client contacts) the following:

### Know:

1. Indications to administer special tests
2. Procedures to assess the listening needs
3. National and international standards regarding electroacoustic characteristics of hearing aids

### Know-how:

1. To administer at least 1 test for adaptation, recruitment, and functional hearing loss.
2. Counsel hearing aid user regarding the use and maintenance hearing aids
3. To troubleshoot common problems with the hearing aids
4. To select test battery for detection of central auditory processing disorders.
5. Select different types of ear molds depending on type of hearing aid, client, degree, type and configuration of hearing loss

### Show:

1. Electroacoustic measurement as per BIS standard on at least 2 hearing aids
2. How to process 2 hard and 2 soft molds
3. How to preselect hearing aid depending on listening needs and audiological findings on at least 5 clinical situations (case files)
4. How select test battery depending on case history and basic audiological information-3 situations

### Do:

1. Tone decay test – 2 individuals with sensorineural hearing loss
2. Strenger test – 2 individuals with unilateral/asymmetrical hearing loss
3. Dichotic CV/digit, Gap detection test – 2 individuals with learning difficulty or problem in hearing in noise
4. Hearing aid fitment for at least 5 individuals with mild to moderate and 3 individuals with mod-severe to profound
5. Hearing aid selection with real ear measurement system on 3 individuals with hearing impairment



**Course 4.6 (AECC-4.1)**

**Indian constitution**

As per university Guidelines

**Course 4.7 (AECC 4.2):034ENG041**

**English-4**

As per university Guidelines

**Course 4.8 (AECC-4.3):034KAN041**

**MIL-4**

As per university Guidelines

**Course 4.9 (SEC-VB-4.1)**

NSS/visual arts

As per university Guidelines

**Scheme of Practical Examination (distribution of marks): 25 marks for Semester end examination**

**3. Practicum – 10 Marks**

**4. Viva- 15 Marks**

**Total 25 marks**

**Note: Same Scheme may be used for IA (Formative Assessment) examination**

**Details of Formative assessment (IA)for DSCC theory/OEC: 40% weight age for total marks**

Type of Assessment	Weight age	Duration	Commencement
Written test-1	15%	1 hr	8 <sup>th</sup> Week
Written test-2	15%	1 hr	12 <sup>th</sup> Week
Case study / Assignment / Field work / Project work/ Activity	10%	-----	--
Total	40% of the maximum marks allotted for the paper		

**GENERAL PATTERN OF THEORYQUESTION PAPER FOR DSCC/ OEC  
(60 marks for semester end Examination with 2 hrs duration)**

**Part-A**

4. Question number 1-06 carries 2 marks each. Answer any 05 questions :10marks

**Part-B**

5. Question number 07- 11 carries 05Marks each. Answer any 04questions : 20 marks

**Part-C**

6. Question number 12-15 carries 10 Marks each. Answer any 03 questions : 30 marks

(Minimum 1 question from each unit and 10 marks question may have sub questions for 7+3 or 6+4 or 5+5 if necessary)

**Total: 60 Marks**

**Note: Proportionate weightage shall be given to each unit based on number of hours prescribed.**

