UNIVERSITY OF MYSORE

M.Sc. (Speech-Language Pathology) CBCS and CAGP Regulations – 2012

1.0 Title and Commencement

1.1 These Regulations shall be called the University of Mysore regulations for Choice Based Credit System (CBCS) and Continuous Assessment Grading Pattern (CAGP) for **M.Sc. (Speech-Language Pathology) programme.** These Regulations shall come into force from the academic year 2012- 2013.

2.0 Duration of the program

2.1 Duration of the program: 4 Semesters / 2 years

Note: Each semester shall extend over a minimum period of eighteen weeks excluding examination days.

3.0 Definitions

3.1 **Course (paper)** Every course offered will have three components associated with the teaching-learning process of the course, namely

(i) Lecture – L (ii) Tutorial- T (iii) Practicum (Clinical) - P, where

L stands for Lecture session.

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

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

A course shall have either or all the above components.

The total credits earned by a student at the end of the semester upon successfully completing the course is L + T + P. The credit pattern of the course is indicated as L: T : P.

Different courses of study are labelled and defined as follows:

3.2 **Core Course**

A course which should compulsorily be studied by a candidate as a core-requirement is termed as a Core course.

3.2.1 A Core course may be a **Soft Core** if there is a choice or an option for the candidate to choose a course from a pool of courses from the main discipline / subject of study or from a sister/related discipline / subject which supports the main discipline / subject. In contrast to the phrase Soft Core, a compulsory core course is called a **Hard Core** Course**.**

3.3 **Elective Course**

Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline / subject of study or which provides an extended scope or which enables an exposure to some other discipline / subject/domain or nurtures the candidate's proficiency/ skill is

called an Elective Course. Elective courses may be offered by the main discipline / subject of study or by sister / related discipline / subject of study. A Soft Core course may also be considered as an elective.

An elective course chosen generally from an unrelated discipline / subject, with an intention to seek exposure is called an **open elective**.

An elective course designed to acquire a special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher is called a **Self Study Elective**.

A core course offered in a discipline / subject may be treated as an elective by other discipline / subject and vice versa.

3.4 **Dissertation** is another special course of 7 credits involving a problem solving component.

4.0 Eligibility for admission.

4.1 Candidates with a BASLP / B.Sc. (Speech & Hearing) degree fulfilling all the following criteria are eligible for admission:

4.1.1 Degree from the University of Mysore or any other University considered as equivalent.

4.1.2 The program should be **approved by RCI** and

4.1.3 An average of not less than 50% of marks in the qualifying examination.

[**Note:** 'Average' refers to the average of the aggregate marks of all the years/semesters of BASLP/ B.Sc. (Speech & Hearing) programme].

4.2 Admission shall be made only on the basis of the marks obtained in the entrance examination conducted by the training institutes for this purpose as per their stipulated rules and regulations. (eligibility differs for categories)

Further, only those candidates who secure more than 40% in the entrance examination are eligible for admission.

4.3 Entrance Examination

4.3.1 The objective of entrance examination is to assess the knowledge and skill of the candidates in the subjects of B.Sc. (Speech & Hearing)/BASLP.

4.3.2 The entrance examination shall be conducted as notified from time-to-time as per the rules and regulations of the training institute.

4.3.3 The selection committee shall consist of the Head of the Institution, as Chairperson, one faculty member of the institution nominated by Head of the Institution, and one member nominated by the Vice-Chancellor.

5.0 Scheme of Instruction

5.1 Details of the structure of the programme including the number of hours for the L:T:P components is provided in **Annexure I.**

5.2 The syllabus of every paper is divided into four units.

5.3 Candidates shall attend camps/extension programs/educational tour conducted by the institution.

5.4 A Master's Degree program is of 4 semesters-two year's duration. A candidate can avail a maximum of 8 semesters – 4 years (in one stretch) to complete the Master's Degree (including blank semesters, if any). Whenever a candidate opts for blank

semesters, he /she has to study the prevailing courses offered by the department when he / she continues his / her studies.

5.5 A candidate has to earn a minimum of 76 credits for successful completion of the master's degree. The 76 credits shall be earned by the candidate by studying Hardcore, Softcore /electives / dissertation / Clinical Practicum, as specified in the program. The degree shall be awarded at the end of the two years.

5.6 Only such candidates who register for a minimum of 18 credits per semester and complete successfully 76 credits in 4 successive semesters shall be considered for declaration of ranks, medals and are eligible to apply for student fellowship, scholarship, free ships and hostel facilities.

6.0 Attendance

6.1 Each course shall be taken, as a unit for purpose of calculating attendance and a candidate shall be considered to have put in the required attendance for the course, if he/she has attended not less than 80% in case of theory classes and 90% in case of clinical practicum.

6.2 Shortage of attendance up to 5% in theory classes and up to 10% in clinical practicum can be recommended for condonation by the Head of the Institution, to the Vice Chancellor, in accordance with the prevailing rules of the University.

6.3 A candidate who is having shortage of attendance in clinical practicum is permitted to make up this shortage by attending clinical work during vacation/s immediately after that semester and he /she has to study the prevailing courses offered by the department when he / she continues his / her studies.

Note: The candidates are permitted to avail this facility (6.2) in the I & III semesters only, with prior permission of the Head of the Institution.

6.4 A candidate, who fails to satisfy the requirement of attendance in a course, shall rejoin the same course in the immediate next academic year.

Note: This facility shall be available only **once** in the entire programme.

6.5 If a candidate represents his/her Institution in Sports/NSS/Cultural or any official activities, he/she is permitted to avail to a maximum of 15 days in a semester, based on the recommendation and prior permission of the Head of the Institution.

7.0 Medium of Instruction

The Medium of instruction shall be English.

8.0 Continuous assessments, earning of credits and award of grades

The evaluation of the candidate shall be based on continuous assessment. The structure for evaluation is as follows:

8.1 Assessment and evaluation processes happen in a continuous mode. However, for reporting purposes, a semester is divided into 3 discrete components identified as C_1, C_2, and C_3.

8.2 The performance of a candidate in a course will be assessed for a maximum of 100 marks as explained below.

8.2.1 The first component (C_1), of assessment is for 25 marks. This will be based on test, assignment, seminar. During the first half of the semester, the first 50% of the syllabus (the first two units of the total units in a course) will be completed. This shall be consolidated during the 8th week of the semester.

8.2.2 The second component (C_2), of assessment is for 25 marks. This will be based on test, assignment, seminar. The continuous assessment and scores of second half of the semester will be consolidated during the 16th week of the semester. During the second half of the semester the remaining units in the course will be completed.

8.2.2.1 The outline for continuous assessment activities for Component-I (C_1) and Component-II (C_2) will be proposed by the teacher(s) concerned before the commencement of the semester and will be discussed and decided in the respective Departmental Council. The students should be informed about the modalities well in advance. The evaluated courses/assignments during component I (C_1) and component II

(C_2) of assessment are immediately returned to the candidates after obtaining acknowledgement in the register maintained by the concern teacher for this purpose.

8.2.3 During the 18th -20th week of the semester, a semester-end examination of 2 hours duration shall be conducted for each course. This forms the third/final component of assessment (C_3) and the maximum marks for the final component will be 50.
Note: Model question paper pattern is as given in **Annexure - II**

8.3 Clinical Practicum

8.3.1 The clinical practicum examinations shall be in the main subjects of study, i.e., in Audiology/Speech-Language Pathology which would be conducted by internal examiners.

8.3.2 Clinical practicum is part of all the semesters. The internal assessment will be conducted continuously, through the semesters.

8.3.3 Break-up of marks of clinical practicum shall be as follows:

8.3.3 Break-up of marks of clinical practicum shall be as follows:

Odd semesters:

Components	Basis of assessment
C 1 + C2 : 50 marks ***(internal assessment)***	• Clinical skill/repertoire • Planning, assessment & management of therapy • Preparation and maintenance of clinical documents (test protocols, diary, lesson plans and progress report) • Rapport with stakeholders • Efficient use of time/skills in execution • Professional attitude/motivation/aptitude for clinical work
C 3 : 50 marks ***(clinical viva)***	Clinical viva-voce conducted by **three internal examiners consisting of *clinical staff/faculty***, who shall examine the candidate's clinical skills(prior to the commencement of the theory examination).

Even semesters:

Components	Basis of assessment
C 1 + C2 : 50 marks ***(internal assessment)***	• Clinical skill/ repertoire • Planning, assessment & management of therapy • Preparation and maintenance of clinical documents(test protocols, diary, lesson plans and progress report) • Rapport with stakeholders • Efficient use of time/ skills in execution Professional attitude/ motivation/aptitude for clinical work
C 3 : 50 marks ***(clinical viva)***	Clinical viva- voce conducted **jointly** by **internal and external examiners**, who shall examine the candidate's clinical skills (prior to the commencement of the theory examination).

8.3.4 In case a candidate secures less than 30% in C1and C2 put together in a course, the candidate is said to have DROPPED that course, and such a candidate is not allowed to appear for C3 in that course.
In case a candidate's class attendance in a course is less than the stipulated percentage, the candidate is said to have DROPPED that course, and such a candidate is not allowed to appear for C3 in that course.

Teachers offering the courses will place the above details in the Department Council meeting during the last week of the semester, before the commencement of C3, and subsequently a notification pertaining to the above will be brought out by the Chairman of the Department before the commencement of C3 examination. A copy of this notification shall also be sent to the office of the Registrar & Registrar (Evaluation).

In case a candidate secures less than 30% in C3, he/she may choose DROP/MAKEUP option.
In case a candidate secures more than or equal to 30% in C3, but his/her grade (G) = 4, as per section 6.9 below, then he/she may be declared to have been conditionally successful in this course, provided that such a benefit of conditional clearance based on G=4 shall not be availed for a maximum of 8 credits for the entire programme of Master's Degree of two years.

In case a candidate secures more than 30 % in C3 but G=4, then he/she may choose DROP/MAKE-UP option. The candidate has to exercise his/her option immediately within 10 days from the date of notification of results. A MAKE-UP examination will be conducted within 25 days from the date of notification of results. If the candidate still remains unsuccessful after MAKE-UP examination he/she is said to have DROPPED that course.

A candidate has to re-register for the DROPPED course when the course is offered again by the department if it is a hard core course. The candidate may choose the same or an alternate core/elective in case the dropped course is soft core / elective course. A candidate who is said to have DROPPED project work has to re-register for the same subsequently within the stipulated period. The details of any dropped course will not appear in the grade card..

8.4 Dissertation work

8.4.1 There shall be 100 marks for dissertation work. 25% of the marks will be awarded in the III semester and 75% in the IV semester.

8.4.2 Right from the initial stage of defining the problem, the candidate has to submit progress reports periodically and also present his/her progress in the form of seminars in addition to the regular discussion with the guide. Components of evaluation are as follows:

III Semester:

Components	Basis	Remarks
C 1 : 25%	Preparation of research proposal	To be awarded by the Guide
C 2 : 25%	Research proposal	To be evaluated by a panel of two members consisting **of the guide and an internal examiner**
C 3 : 50%	Periodic progress and progress report following Research proposal.	To be awarded by the Guide

IV Semester:

Components	Basis	Remarks
C 1 : 25%	Periodic progress and progress report	To be awarded by the Guide
C 2 : 25%	Results of Work and Draft Report	To be awarded by the Guide
C 3 : 50% Report evaluation: 35% and Viva- voce examination: 15%	Final viva-voce and evaluation	To be evaluated by a panel of two members consisting of the **guide and an external examiner**

8.4.3 The candidates shall submit three copies of dissertation before the commencement of theory examination of that semester. Candidates who fail to submit their dissertations on or before the stipulated date shall not be permitted to appear for the final semester examination.

8.4.4 A candidate who is said to have DROPPED dissertation work has to re-register for the same subsequently within the stipulated period.

8.5 Setting questions papers and evaluation of answer scripts.

8.5.1 I. Questions papers in three sets shall be set by internal / external examiners for a course.

II. The Board of Examiners shall scrutinize and approve the question papers and scheme of valuation.

III. There shall be only external valuation for all theory papers. The marks awarded by the external examiners shall be taken as the final marks for that particular course.

IV. Challenge valuation: A student who desires to apply for challenge valuation shall obtain a photocopy copy of the answer script by paying the prescribed fee within 10 days after the announcement of the results. He / She can challenge the grade awarded to him/her by surrendering the grade card and by submitting an application along with the prescribed fee to the Registrar (Evaluation) within 15 days after the announcement of the results. This challenge valuation is only for C_3 component.

The answer scripts for which challenge valuation is sought for shall be sent to another examiner. The marks awarded in the challenge valuation shall be the final.

8.5.2 In case of a course with only practical component a practical examination will be conducted with both internal and external examiners. A candidate will be assessed on the basis of a) knowledge of relevant processes b) Skills and operations involved c) Results / products including calculation and reporting. If external examiner does not turn up then both the examiners will be internal examiners. The duration for semester-end practical examination shall be decided by the departmental council.

8.5.3 If a course has both theory and practical components with credit pattern L : T : P, then as parts of (C_1 and C_2) both theory and practical examinations shall be conducted for 50 marks each. The final (C_3) component marks shall be decided based on the marks secured by the candidate in the theory examinations. If **X** is the marks scored by the candidate out of 50 in C3 in theory examination, if **Y** is the marks scored by the candidate out of 50 in C3 in Practical examination, and if **Z** is the marks scored by the

candidate out of 50 in C3 for a course of (L=0):T:(P=0)type that is entirely tutorial based course, then the final marks M in C3 is decided as per the following table.

L.T.P distribution	Find mark M in C3
L:T:P	$\frac{[(L+T)*X]+[(T+P)*Y]}{L+2T+P}$
L:(T=0):P	$\frac{(L*X)+(P*Y)}{L+P}$
L:T:(P=0)	X
L:(T=0):(P=0)	X
(L=0):T :P	Y
(L=0): (T=0):P	Y
(L=0): T:(P=0)	Z

8.5.4 The details of continuous assessment are summarized in the following Table.

Component	Syllabus in a course	Weightage	Period of Continuous assessment
C_1	First 50% (2 units of total units)	25%	First half of the semester. To be consolidated by 8th week
C_2	Remaining 50% (Remaining units of the course)	25%	Second half of the semester. To be consolidated by 16th week
C_3	Semester-end examination (All units of the course)	50%	To be completed during 18th-20th Week.
Final grades to be announced latest by 24th week			

8.5.5 A candidate's performance from all 3 components will be in terms of scores, and the sum of all three scores will be for a maximum of 100 marks (25 + 25 + 50).

8.5.6 **Finally, awarding the grades should be completed latest by 24th week of the semester**.

8.6 In case a candidate secures less than 30% in C1and C2 put together in a course, the candidate is said to have DROPPED that course, and such a candidate is not allowed to appear for C3 in that course.
In case a candidate's class attendance in a course is less the stipulated percentage, the candidate is said to have DROPPED that course, and such a candidate is not allowed to appear for C3 in that course.
Teachers offering the courses will place the above details in the Department Council meeting during the last week of the semester, before the commencement of C3, and subsequently a notification pertaining to the above will be brought out by the Chairman of the Department before the commencement of C3 examination. A copy of this notification shall also be sent to the office of the Registrar & Registrar (Evaluation).

8.7 In case a candidate secures less than 30% in C3, he/she may choose DROP/MAKEUP option. In case a candidate secures more than or equal to 30% in C3, but his/her grade (G) = 4, as per section 6.9 below, then he/she may be declared to have been conditionally successful in this course, provided that such a benefit of conditional clearance based on G=4 shall not be availed for a maximum of 8 credits for the entire programme of Master's Degree of two years.

In case a candidate secures more than 30 % in C3 but G=4, then he/she may choose DROP/MAKE-UP option. The candidate has to exercise his/her option immediately within 10 days from the date of notification of results. A MAKE-UP examination will be conducted within 25 days from the date of notification of results. If the candidate still remains unsuccessful after MAKE-UP examination he/she is said to have DROPPED that course.

8.8 A candidate has to re-register for the DROPPED course when the course is offered again by the department if it is a hard core course. The candidate may choose the same or an alternate core/elective in case the dropped course is soft core / elective course. A candidate who is said to have DROPPED project work has to re-register for the same subsequently within the stipulated period. The details of any dropped course will not appear in the grade card.

8.9 The tentative / provisional grade card will be issued by the Registrar (Evaluation) at the end of every semester indicating the courses completed successfully. This statement will not contain the list of PENDING or DROPPED courses.

8.10 Upon successful completion of Masters degree, a final grade card consisting of grades of all courses successfully completed by the candidate will be issued by the Registrar (Evaluation).

8.11 The grade and the grade point earned by the candidate in the course will be as given below.

P	G	GP = V x G
90-100	10	V X 10
80-89	9	V X 9
70-79	8	V X 8
60-69	7	V X 7
50-59	6	V X 6
40-49	5	V X 5
30-39	4	V X 4
0-<30	0	V X 0

Here, P is the percentage of marks (P=[(C1+C2)+M] secured by a candidate in a course which is rounded to nearest integer. V is the credit value of course. G is the grade and GP is the grade point.

8.12 A candidate also has an option to withdraw a course even after final examination, if he / she feels that he / she should improve in the course in terms of grade. The withdrawal of a course can be either only for C_3 components, in which the candidate has to reappear for only C3 component to improve, carrying the marks of C_1 and C_2 components (this option is called PENDING option), or for the entire course where the candidate has to reenrol for the course afresh or can chose an alternative course if the withdrawal course is a soft/elective core (this option is called DROPPED option). This act of withdrawing should be immediately within seven days after the announcement of final results.

8.13 Overall cumulative grade point average (CGPA) of a candidate after successful completion the required number of credits (76) is given by

CGPA = Σ GP / Total number of credits (calculated up to 4 decimal places)

9. Classification of results:

The final grade point (FGP) to be awarded to the student is based on CGPA secured by the candidate and is given as follows.

CGPA	FGP	
	Numerical Index	**Qualitative Index**
4 <= CGPA < 5	5	SECOND CLASS
5 <= CGPA < 6	6	
6 <= CGPA < 7	7	FIRST CLASS
7 <= CGPA < 8	8	
8 <= CGPA < 9	9	DISTINCTION
9 <= CGPA < =10	10	

Overall percentage = 10*CGPA or is said to be 50% in case of CGPA < 5

10.0 Provisions for Repeaters

10.1 A candidate is allowed to carry all the previous uncleared papers **except clinical practicum** to the subsequent semester/semesters subject to Regulation 8.3.3.

11 Provision for appeal

11.1 If a candidate, is not satisfied with the evaluation of C1 and C2 components, he / she can approach the grievance cell with the written submission together with all facts, the assignments, test papers etc, which were evaluated. He/she can do so before the commencement of semester-end examination. The grievance cell is empowered to revise the marks if the case is genuine and is also empowered to levy penalty as prescribed by the university on the candidate if his/her submission is found to be baseless and unduly motivated. This cell may recommend taking disciplinary/corrective action on an evaluator if he/she is found guilty. The decision taken by the grievance cell is final.

11.2 For every program there will be one grievance cell. The composition of the grievance cell is as follows.

1. The Registrar (Evaluation) ex-officio Chairman / Convener
2. One senior faculty member (other than those concerned with the evaluation of the course concerned) drawn from the department/discipline and/or from the sister departments/sister disciplines.
3. One senior faculty members / subject experts drawn from outside the University department.

12.0 Barring of simultaneous study

12.1 No candidate admitted to the degree programme in a College/Institution under the jurisdiction of this University shall be permitted to study simultaneously in any other programme leading to a degree (regular, evening & morning) offered by this or any other University.

12.2 If a candidate gets admitted to more than one programme, the University shall cancel without giving prior notice, his/her admission to all the programmes to which he/she has joined.

13.0 Miscellaneous

13.1 These revised regulations will apply to candidates admitted for the academic year 2012-13 and onwards.

13.2 Any other issue, not envisaged above, shall be resolved by the Vice Chancellor in consultation with the appropriate bodies of the university, which shall be final and binding.

REGISTRAR **VICE-CHANCELLOR**

Annexure – I

M.Sc. (Speech Language Pathology) CBCS and CAGP Regulations – 2012

Sem.	Paper No.	Credit L:T:P	Credits	Total Credits	No. of Hrs (Hr x Cr = Hr)	No. of Hrs/wk	Total hrs/Wk	HC/SC /OE	Title of the paper
I	1.1	2:1:0	3	18	L=1x2=2 T=2x1=2	4	35	HC	Research methods & Statistics in Speech-Language & Hearing
	1.2	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Neurobiology of speech and language
	1.3	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Speech Production
	1.4	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Clinical Linguistics & Multilingual Issues in Communication
	1.5	1:1:0	2		L=1x1=1 T=2x1=2	3		SC	Technology for speech language and hearing/ assessment and management of CAPD
	1.6*	0:0:4	4		C=4x4=16	15+1^		HCC	Clinical Practicum I
II	2.1	2:1:0	3	19	L=1x2=2 T=2x1=2	4	38	HC	Language, Cognition and Brain
	2.2	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Maxillofacial anomalies and phonological disorders
	2.3	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Child Language Disorders
	2.4	1:1:0	2		L=1x1=1 T=2x1=2	3		SC	Clinical Neuropsychology **OR** Clinical Counseling **OR** Clinical Behavior analysis **OR** Endoscopic evaluation of lesions of the larynx
	2.5	(3 credits)	3			3		OE	Any paper offered by the UOM
	2.6*	0:0:4	4		C=4x4=16	15+1^		HCC	Clinical Practicum I
	2.7*	0:0:1	1		C=4x1=4	3+1^		SCC	Clinical Practicum II

M.Sc. (Speech Language Pathology) CBCS and CAGP Regulations – 2012

Sem.	Paper No.	Credit L:T:P	Credits	Total Credits	No. of Hrs (Hr x Cr = Hr)	No. of Hrs/wk	Total hrs/Wk	HC/SC/OE	Title of the paper
III	3.1	2:1:0	3	20	L=1x2=2 T=2x1=2	4	40	HC	Fluency and its Disorders
	3.2	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Speech and Language Processing
	3.3	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Aphasia
	3.4	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Voice and its Disorders
	3.5	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Motor speech disorders
	3.6*	0:0:4	4		C=4x4=16	15+1^		HCC	Clinical Practicum I
	3.7	D	1		D=4x1=4	3+1^		HC	Dissertation
IV	4.1	2:1:0	3	19	L=1x2=2 T=2x1=2	4	34	HC	Adult Language disorders
	4.2	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Augmentative and Alternative Communication
	4.3	2:1:0	3		L=1x2=2 T=2x1=2	4		HC	Suprasegmentals & Music acoustics
	4.4*	0:0:4	4		C=4x4=16	15+1^		HCC	Clinical Practicum I
	4.5	D	6		D=1x6=6	5+1^		HC	Dissertation
Total credits			**76**						

*** Clinical practicum (internal) shall begin from I/III semester.**
^ One hour to be used for JC/CC

HCC – Hard Core Clinical; SCC – Soft Core Clinical: Counseling and guidance, Neuropsychological evaluation, Clinical Behavioural analysis, clinical management of lesions of larynx.

L= Lecture (1 hour=1 credit)
T=Tutorial (2 hours=1 credit)
P=Clinical Practicum (4 hours=1credit)
D=Dissertation

Annexure - II

Master of Science (Speech-Language Pathology)
CBCS SCHEME (MODEL QUESTION PAPER PATTERN)

(All Units are Compulsory)

Paper Title: ……………… Max. Marks 50
Paper Code: …………….

Unit No.	Question Number	Question/s	Marks
I	1)	A x x x x x x x x x x x x x x x x x x x x x	10
		OR	
	2 (a)	B x x x x x x x x x x x x x x x x x x x x x	05
	2 (b)	C x x x x x x x x x x x x x x x x x x x x x	05
II	3 (a)	D x x x x x x x x x x x x x x x x x x x x x	10
	3 (b)	E x x x x x x x x x x x x x x x x x x x x x	05
		OR	
	4)	F x x x x x x x x x x x x x x x x x x x x x	15
III	5 (a)	G x x x x x x x x x x x x x x x x x x x x x	05
	5 (b)	H x x x x x x x x x x x x x x x x x x x x x	05
	5 (c)	I x x x x x x x x x x x x x x x x x x x x x	05
		OR	
	6 (a)	J x x x x x x x x x x x x x x x x x x x x x	10
	6 (b)	K x x x x x x x x x x x x x x x x x x x x x	05
IV	7 (a)	L x x x x x x x x x x x x x x x x x x x x x	05
	7 (b)	M x x x x x x x x x x x x x x x x x x x x x	03
	7 (c)	N x x x x x x x x x x x x x x x x x x x x x	02
		OR	
	8)	O x x x x x x x x x x x x x x x x x x x x x	10

Regulation: For a theory paper carrying 50 marks, each full question shall carry either 10 or 15 marks, with internal choices having equal marks. Each **15** question can be divided as follows: **15, 10**+**5, 5**+**5**+**5** and each **10** question can be divided as follows: **10, 5**+**5, 5**+**3**+**2**. Maximum number of subdivision in a question shall be THREE.

REGISTRAR **VICE-CHANCELLOR**

SEMESTER I

Paper Code: SLP 1.1 - HC: *Neurobiology of Speech and Language*

OBJECTIVES

After studying this course the students shall be able to

- Understand the neurobiology of speech and language functions
- Apply and interpret investigative procedures and its findings to pathologies of neurobiological structures and functions
- Appreciate the role of neurotransmitters in speech and language functions
- Understand, assess, analyze and infer on the effect of aging on neurobiological structures and functions
- Discuss and generate research questions for the study of neurobiology related to speech and language
- Develop skills with hands-on experience with a few field-based and lab-based procedures to understand neurobiology in greater depth through practical modules

COURSE CONTENT

Unit 1: Anatomy and Physiology of cranial nerves related to speech and language

1.1 Gross anatomy of central nervous system, Hemisphere and lobes, Broadmann's areas, Microscopic structural divisions of cerebral cortex, sub-cortical structures, brain stem Hierarchy of neuroaxial organization
1.2 Functional organization of human brain, Topographical organization of cortical pathways, Interconnectivity of the brain
1.3 Brain plasticity, Hemispheric specialization, Cerebellum- Structure, connection and pathways, Brainstem - Structure and pathways
1.4 Subcortical structures, connection and pathways, Spinal cord- organization and functions of its nuclei, Cranial nerves and nuclei
1.5 Sensori-motor function, Motor tracts- Pyramidal and extra pyramidal pathways, UMN and LMN palsy, Blood supply to CNS

Unit 2: Investigative procedures for assessment of Neurological and Biological status of speech and language mechanisms

2.1 Clinical examination of neurological status-history, physical examination, reflexes, etc.,
2.2 Neurodiagnostic procedures for routine clinical examination, advantages and disadvantages
2.3 Advanced and state-of-the-art neurodiagnostic procedures such as CT scan, MRI, fMRI, PET, SPECT and others, advantages and disadvantages

2.4 Evoked potentials: Visual, auditory and somato-sensory potentials, advantages and disadvantages
2.5 Neurobehavioral assessment methods such as neurolinguistic investigation, priming, reaction time and other related procedures

Unit 3: Role of neurotransmitters in the mediation of speech and language

3.1 Neurochemical changes and activity of neurotransmitters - GABA, CAT, Ach, GAD and others
3.2 Synthesis and activation of different neurotransmitters
3.3 Signaling in the nervous system- ion channels, transport across cell membranes, neurons as conductors of electricity, resting potential and action potential
3.4 Neuropathologies in speech and language disorders
3.5 Organization and processing of information in brain, Receptors, types of synapses, synaptic transmission-direct and indirect, exocytosis and endocytosis

Unit 4: Neurobiology of aging and its effect on speech and language

4.1 Aging-definition, Types- senescence and senility, primary and secondary aging, biological and psychological aging
4.2 Phenomenon of aging-Neurological, cognitive and behavioral correlates, structural changes with age, brain weight, ventricular size, microscopic changes and atrophy
4.3 Theories of aging: Cellular, Genetic, cumulative, random cell damage, programmed cell death, high level control of aging, cellular theories, geriatric theories and other theories
4.4 Neurophysiological /functional changes with age: Accuracy, Speed, Range, Endurance, Coordination, Stability and Strength, Neurobehavioral correlates of aging - Lateralization of functions across life span, Cerebral asymmetry, Electrophysiological and behavioral evidences
4.5 Aging and communication behaviour: Effects of aging on communication across life span, normal and pathological aging with reference to communication behaviour, prevention of decline in communication behaviour with aging

References:

Unit 1: Anatomy and Physiology of cranial nerves related to speech and language

1. Human Brain-Its Capabilities and Function. Issac Asimov1 (1963)
2. Brain And Sensory Plasticity Berlin - Language Acquisition And Hearing, Berlin & Weyand
3. The Nervous System - An Outline of the Structure and Function of the Human Nervous. G.M.Wybur, 1960
4. Organization of the Central Nervous System. C.V. Brewer, 1961
5. Speech and Brain-mechanisms. Wilder Penfield , Lamar Roberts, 1959
6. The Neurological Mechanisms of Hearing and Speech in Children, Ian G.Taylor, 1964
7. Human Body-Its Anatomy and Physiology, C.H. Best, N.B. Taylor, 1966
8. Developmental Anatomy. Arey L. B.
9. Anatomy for Speech and Hearing- Textbook And Laboratory Manual of Embryology, J.M.Palmer, Dominic A.Larusso, 1993
10. Neural models of language processes, Arbib et al., 1982
11. Biolinguistics-Exploring the biology of language, Jenkins, I. 2000
12. Neural bases of speech hearing and language, Kuehn, L & Baumgartner, 1989
13. Speech language and communication, Miller J.I., Eimas, P.D. 1995

Unit 2: Investigative procedures for assessment of Neurological and Biological status of speech and language mechanisms

1. Electrical Stimulation of the Brain- An Interdisciplinary Survey of Neurobehavioral Integrative Systems. Daniel E.Sheer, 1961
2. Experimental Methods and Instrumentation in Psychology, Joseph B. Sidowski, 1966
3. The Neurological Mechanisms of Hearing and Speech in Children Ian G.Taylor, 1964
4. A Critique of Experimental Techniques Methods and Analyses in the Study of Structure in Speech, Proceedings of a symposium sponsored by the Data Sciences Laboratory, C. R Sankaran, L.H.strong, 1965
5. Models for the perception of speech and visual form, Weiant Wathen-dunn, 1967
6. Research Methods in the Behavioural Sciences, Research Methods in the Behavioural Sciences, Leon Festinger , Daniel Katz, 1966
7. Advances in speech, hearing and language processing-A research annual Vol !, Ainsworth W.A (ed.) 1990
8. The bilingual brain-Neurophysiological and neurolinguistic aspects of bilingualism. Perspectives in neurolinguistics and psycholinguistic series, Albert M.L. & Obler, L.K. 1978.
9. Cognitive Neurophysiology and neurolinguistics-Advances in models of cognitive function and impairment, Caramazzaa (ed.) 1990.

Unit 3: Role of neurotransmitters in the mediation of speech and language

1. Biological Foundation of Language, Eric H.Lenneberg, 1967
2. Functional Approach to Neuroanatomy, Earl Lawrence House, Ben Pansky, 2nd Edn. 1967
3. Principles of General Neurology, Introduction to the Basic Principles of Medical and Surgical Neurology, Barry Wyke, 1969
4. The Action of Neuroleptic Drugs- A Psychiatric Neurologic and Pharmological Investigation, Hans J.Haase, Paul A.J.Janssen, 1965
5. Neuroanatomy- Programmed Text. Richard L. Sidman, Murray Sidman, 1965
6. Human Nervous System- a Developmental Approach, R.L. Holmes, J.A. Sharp, 1969

Unit 4: Neurobiology of aging and its effect on speech and language

1. On the Neuronal Organization of the Brain. G.I.Poliakov, 1971
2. Developmental Psychology of Jean Piaget. John H.Flavell, 1963
3. Human Memory, Jack A.Adams, 1967
4. Physiology of the Nervous System, an Introductory Text, Carlos Eyzaguirre, 1969
5. Motor Neuron Diseases-Research on Amyotraphic Lateral Sclerosis and Related Disorders. Forbes H.Norris, Leonard T.Kurland, 1969
6. Audiological Assessment, Contemporary Neurology Symposia, Darrell E.Rose, 1971
7. Aphasiology, Lecours A et al., 1982
8. Aphasia, Rose, E. (ed.), 1993
9. Handbook of neurological speech and language disorders, Marcel Dekker, 1995
10. Cases in neurogenic communicative disorders-A workbook, Dworking J and Hartman D.E. (eds.) 1994
11. Aging-Communication processes and disorders, Beasley D.S. and Davis A.G. (eds.) 1981.
12. Handbook of geriatric communication disorders, Ripich D.N. (ed) 1991.
13. The aging brain: Communication in the elderly, Ebtowska A.R. (ed.) 1985.

Paper Code: SLP 1.2 - HC: *Research methods & Statistics in Speech-Language & Hearing*

Objectives

- To enable the students to understand and deduce the use of research methods from the review of literature
- To prepare the students on the application of the research methods and techniques in communication disorders
- To enable them to choose appropriate research designs to carry out research in the field
- To understand the applications of Statistics in the field of Speech-Language Pathology and Audiology
- To know basic concepts of Statistics
- To learn various types of tests of significance, applicable to the field of Speech and Hearing and practice manual application of these tests

COURSE CONTENT

Unit 1

- Review of basic research methods, types, strategies and designs. (Ex-post facto research, Normative research, Standard group comparison, Experimental research, Clinical and applied research, Sample surveys, Evaluation research and Epidemiological research) with special focus on review of literature on research methodology in the field of Speech language pathology and Audiology since 1920s
- Methods of Observation and measurement in speech language pathology and Audiology.

Unit 2

- Experimental designs. The structure and logic of experimental designs, single subject designs and group designs.
- Documentation. a) Organization, format and writing style. b) Legal, ethical and cultural considerations for research in speech language pathology and audiology.

Unit 3

- Review of basic statistics
- Methods of correlation & regression (with numerical examples)
- Review of comparison of two means (independent t-test and paired t-test with numerical examples)
- Analysis of variance (ANOVA): Basic model, Types, assumptions, one-way and two-way ANOVA (with numerical examples), Post-hoc tests, concept of repeated measure ANOVA

- Multivariate data analysis (Introduction only): Need for multivariate analysis, Introduction to various methods viz,. Principal component analysis, Cluster analysis, Discriminant analysis, MANOVA

Unit 4

- Consequences of failure of assumptions underlying parametric tests, need for transformations and non-parametric tests.
- Non-parametric tests (with numerical examples) – Mann –Whitney U test, Wilcoxon's signed-rank test , Median test, Sign test, Kruskal – Wallis test, Friedman test
- Analysis of qualitative data: Contingency tables, Chi-square test for independence of attributes, measures of association (Contingency coefficient, Cramer's V), Kappa coefficient (with numerical examples)
- Application of statistics to speech-language pathology & audiology with specific examples.

Reference:

Unit 1:

1. Grosof. M.S., Sardy. H. (1985). A research primer for the social & behavioral sciences. New York. Academic press.
2. Hegde, M.N. (1987). Clinical Research in Communicative Disorders. Principles and Strategies, Boston,. College-Hill Press.
3. Hegde, M.N. (1994). Clinical Research in Communicative Disorders. Principles and Strategies, Austin, ProEd.
4. Lindlof (1995). Qualitative communication research methods, California, Sage publications.
5. Maxwellsatake (1997). Research and statistical methods in communication disorders, Baltimore, Williams & Wilkins.
6. Pannbaker M.H. (1994). Introduction to clinical research in communication disorders, Sandiego, Singular publishing group.
7. Schiavetti Metz (1997). Evaluating research in communication disorders, Boston, Allyn & Bacon.
8. Tucker (1981). Research in speech communication, Prentice Hall. Inglewood cliffs.
9. Ventry. I. M.& Schiavetti N. (1980). Evaluating research in speech pathology and Audiology, London. Addison Wesley.

Unit 2:

1. Broota (1989). Experimental design in behavioral research. Eastern New Delhi, Wiley. Doehring (1988). Research strategies in human communication disorders, Austin, Proed.
2. Frey (1991). Investigating communication. An introduction to research methods. Inglewood cliffs, Prentice Hall.

3. Silverman F.H. (1985). Research design and evaluation in speech language pathology, Audio logy. Asking questions & answering, Newjersy, Prentice Hall.
4. Silverman, F.N. (1988) Research designs in speech pathology and audiology. Boston. Allyn & Bacon.

Unit 3

1. Abhaya, I, Sanjeev, B.S, (2001). Medical Biostatistics, Marcel Dekkar, Inc, New York
2. Edwards, A.L. (1973). Statistical methods for behavioral sciences, 3rd Ed. New York: Holt Rinehart.
3. Fry (2002). Biological Data Analysis, Oxford University Press, New York
4. Garrett, E.H. (1969). Statistics in Psychology and Education. Bombay: Wakils Feffer.
5. Goodman, R (1972). Teach yourself statistics, English Language Book Society and The English Universities Press Ltd., London
6. Guilford (1978). Fundamental Statistics in Psychology Education. Tokyo: McGraw Hill.
7. Howell (1999). Fundamental statistics for the behavioral science. Boston: Duxbury Press.
8. Jane , Nigel (2003). Understanding Social statistics, Sage publications, London
9. Johnsonwichern (1992). Applied multivariate statistical analysis. New Jersey: Prentice Hall.
10. Kanji (1999): 100 Statistical tests. London: Sage publications..
11. Michael, S. L. (Editor) (1993): Regression Analysis – International hand books of quantitative applications in the social sciences, Vol 2, Sage Publications, London
12. Philip, H. D. (1965). An introduction to psychological statistics, Harper and Row, New York
13. Sancheti , Kapoor (1981) . Statistics : Theory, Methods and Application, Sultanchand and sons, New Delhi
14. Steven (1996), Statistical analysis of Epidemiologic Data, Oxford University Press, Oxford.
15. Thompson, B (2006). Foundations of behavioral statistics – An insight-based approach, The Guilford Press, New York

Unit 4

1. Chris, L (1979)– Introduction to Statistics – A Non-parametric approach for the social sciences, John Wiley & Sons, New York.
2. Goodman, R (1972). Teach yourself statistics, English Language Book Society and The English Universities Press Ltd., London
3. Gibbon (1993). Nonparametric statistics – An introduction. London: Sage publications
4. Kanji (1999): 100 Statistical tests. London: Sage publications..
5. Michael, S. L. (Editor) (1993): Basic Statistics – International hand books of quantitative applications in the social sciences , Vol 1, Sage Publications, London
6. Philip, H. D. (1965). An introduction to psychological statistics, Harper and Row, New York
7. Sancheti , Kapoor (1981) . Statistics : Theory, Methods and Application, Sultanchand and sons, New Delhi
8. Seigal, S. (1956). Non-parametric Statistics for the Behavioral Sciences. Tokyo: McGraw Hill.

Paper Code: SLP 1.3 - HC: *Speech Production*

Objectives

After going through this course the student will be able to explain or understand

- Physiology and Theories of Speech Production,
- Acoustic characteristics and Acoustic analysis of Speech
- Spectrography and its clinical applications
- Instrumentation in speech production and speech acoustics

COURSE CONTENT

Unit 1:

Introduction to the study of speech acoustics

a) The physiological arena of speech (respiration, laryngeal and articulatory subsystem)
b) The acoustic arena of speech – Acoustic wave, Analog and digital signal, digitization, analog-to-digital converter, bandwidth, frequency resolution, window, block duration, pre-emphasis, block shift, characteristics of air borne acoustic signal

Acoustic analysis of speech

a) Brief historic development – Oscillograph, Fourier analysis, spectrograph, digital signal processing (waveform analysis, FFT and LPC, pitch extraction, digital spectrogram, cepstrum, Auto correlation).
b) Filtering – pre-emphasis filtering, pre-sampling filter, sampling, quantization

Acoustic theory of speech production: Thesis, source, types and its characteristics, filter / transfer function and its characteristics, output speech and its characteristics, cavity volume and resonance relationship, internal (Viscous friction and thermal conduction) losses in the vocal tract and their effect on spectra, external loss (lip radiation) and it's effect on spectra.

Acoustic characteristics of vowels and Diphthongs: Vowel formant pattern, vowel short-term spectrum, vowel duration, vowel fundamental frequency, formant bandwidth and amplitude, on glide and off glide of formants.

Acoustic characteristics of plosives: Vocal tract configuration, five distinct characteristics of plosives, closure duration, release burst, release burst spectrum, release burst amplitude, frication and aspiration, voice onset time, formant transitions, voicing characteristics.

***Acoustic Characteristics of nasal consonants*:** Vowel tract configuration, formant frequencies, nasal murmur, formant damping, bandwidth, formant transition, antiformant

Acoustic characteristics of fricatives: Vocal tract configuration, classification of fricatives, acoustic characteristics of stridents and non-stridents, calculation of formant frequencies.

Acoustic characteristics of other consonants

Affricates: Vocal tract configuration, acoustic differences between affricates and plosives

Glides - Vocal tract configuration, formants, bandwidths, transitions, Liquids - Vocal tract configuration, formants, anti formants, bandwidth transitions, Acoustic studies in Indian languages

Acoustic effects of context and speaker: phonetic context, gender and age, women's speech, children's speech, role of acoustic methods in speech pathology.

Unit 2: Spectrography – Features to be identified on a spectrogram, Types of spectrograms and their uses, spectrograms of vowels and consonants, identifying place of articulation, manner of articulation, voicing and aspiration, identification of vowels, syllables, words, word boundaries and sentences. Theoretical and clinical application of spectrography.

Unit 3

Infant cry analysis – Why infant cry analysis? Factors affecting infant vocalization, communicative and vegetative vocalization, prenatal vocalization, perceiving neonatal cries, perceptual identification of cry types (mother's identification of their own infants, identification of gender, health status and prelinguistic vocalizations).
Acoustic attributes of cry signals – Length, f0, shift, voicing, melody types, continuity, glottal plosives, nasality, tension, subhormonic break / double harmonic break/ latency, second pause, biphonation / diplophonation, furcation, noise concentration, tonal pit.
Acoustics of normal and abnormal cries – Weight, orpharyngeal abnormalities, asphyxia neonatorum, central asphyxia with neurological symptoms, low birth weight, CNS disease, hydrocephalus, endocrine disturbances, metabolic disturbances, hypoglycemia, malnutrition, chromosomal and genetic deficits, cri-du-chat, Down's syndrome, Trisomy 13,18, subglottal, glottal and supraglottal pathologies.
Relation of cry acoustics to long-term outcome – Studies by Michelson et al (1977, 1984), cumulative cry score system, predictive value of infant cries, sudden infant death syndrome and cry test.
Models of cry production – source-filter theory, Gullets model, Lester's model, Model of Porgies & Maita, Two-part biobehavioual model
Future directions in infant cry analysis
Acoustic analysis of laughter – Why acoustic analysis? Types of laughter, acoustic characteristics of laughter.

Unit 4

Aerodynamics of speech
Mechanics of airflow – laminar, orifice and turbulent flow.
Generation of pressure in the respiratory system – resting level relaxation pressure curve.
Maintenance of airway pressure for speech – elastic recoil, sub glottal pressure for speech.
Lower air way dynamics – Size and shape of alveolar sacs, constrictors in lower airway, laryngeal activity in speech, Bernoulli's principle, lung volumes in breathing, conversional speech and loud speech, effect of glottal activity on air pressure and air flow, glottal activity during stops consonants, glottal resistance in vowels and consonants, glottal activity in whisper, sub glottal pressure measurement
Upper airway dynamics - Constrictors in upper airway, intraoral pressure in vowels and consonants, relationship between velopharyngeal orifice resistance and oral port size, aerodynamics of voiced and voiceless plosives, fricatives, and vowels, effect of velopharyngeal orifice. Methods of measuring lung volume, and intraoral pressure
Instrumentation in speech acoustics and aerodynamics
Data acquisition systems

Acoustic analysis software – Format analysis, LPC analysis, formant tracking, f0 and intensity analysis, spectrography (CSL, SSL, SFS, PRAAT)
Aerodynamic measures – Vitalograph, Aero phone, SPIDA, RMS Spirograph, functioning, method of measurement, normative data and clinical implications

References

Unit 1

1. Edwards (1992). Applied Phonetics.
2. Ferrand, C T (2007). Speech Science – An integrated approach to theory and practice (II Ed).
3. Fucci & Lass (1999). Fundamentals of speech science
4. Hegde, M N (1991). Introduction to communication Disorders
5. Harris, K S. (1995). Producing Speech: Contemporary Issues.,
6. Kent & Read (2002). The Acoustic Analysis of speech
7. Kent & Read (2002). The Acoustic Analysis of speech
8. Kent, R D (1997). The speech Sciences
9. Ladefoged, P (2001). An Introduction to the Sounds of Languages; Vowels and Consonants,
10. Pickett, J M (1999).The acoustics of speech communication
11. Raphel, Borden & Harris (2007). Speech Science Primer
12. Rosner. B.S.& Pickering. J.B., (1994). Vowel perception and production.
13. Ryalls & Behrans (2000). Introduction to speech sciences- From Basic theories to clinical applications
14. Saito, S (1992). Speech Science & Technology.

Unit 2

1. Ball & Lowry (2001) Methods in Clinical Phonetics
2. Baken , R J & Daniloff, R G.(1991). Readings in Clinical Spectrography. Singular Publishing group, San Diego
3. Hollien, H (2002). Forensic Voice Identification. Academic Press
4. Kent & Read (2002). The Acoustic Analysis of speech
5. Kent, R D (1997). The speech Sciences
6. Ladefoged, P (2001). An Introduction to the Sounds of Languages; Vowels and Consonants,
7. Pickett, J M (1999).The acoustics of speech communication
8. Raphel, Borden & Harris (2007). Speech Science Primer
9. Stevens, K N. (1998). Acoustic Phonetics

Unit 3

1. Barr. R.G., Hopkins. B., Green. J.A., Mackeith Press., (2000). Crying as a sign, a symptom, and a signal:
2. Murry, T. and Murry, J. (1980). Infant communication: Cry and Early speech.

3. Ronald, Brian and James (2000). Crying as a sign, symptom and signal-Clinical, emotional and developmental aspects of infants and toddler crying. Cambridge. University Press.
4. Savithri, S R (2000). Acoustic Analysis of laughter, *Journal of Acoustic Society of India.*

Unit 4

1. Daniloff. (1985) Speech Science: Recent Advances
2. Decker, E N (1996). Instrumentation: Introduction for students in the speech & Hearing Sciences. II ed.
3. Mac Neilage, P F. (1983).The Production of Speech.
4. Seikal (2005). Anatomy & physiology for speech, language and hearing
5. Singh. S. & Singh. K. (2006), Phonetics: principles and practices., IIIrd Edn., Plural Publishing.,
6. Titze, I R.(1994). Principles of voice production
7. Warren, D. W. (1982). In Lass series, Vol 1, Chapter 8, Aerodynamics of Speech.
8. William. J. Barry & Wein. A.Van. (2005.) The integration of phonetic knowledge in Speech Technology.,

Paper Code: SLP 1.4 - HC: ***Clinical Linguistics & Multilingual Issues in Communication***

Objectives: to facilitate

- Knowledge of principles of general linguistics and their clinical relevance.
- Understanding grammar and semantics
- Understanding general concepts and theoretical background of pragmatics and issues related to socio-linguistics
- Understanding of multilingual and cultural issues in rehabilitation with special reference to India

COURSE CONTENT

Unit 1

- Introduction of Clinical Linguistics, The Scope of Linguistics in clinical field, Principles of General Linguistics and their clinical relevance.

- Phonology – Theoretical background: General concepts of segmental & non-segmental phonology. Principles and practices of phonemic analysis. Distinctive feature analysis and its clinical implication. Phonological acquisition and phonological disability

Unit 2

- Morphology and syntax – A review of basic concepts related to syntax and morphology, Identification of morphemes - Principles of Morphemic analysis and its clinical implication. Review of the scope of syntactic analysis - Immediate Constituent Analysis (ICA), Phrase Structure Grammar (PSG) and Transformational Generative Grammar (TGG). Grammatical acquisition and grammatical disability.

- Semantics – Lexical meaning – Words and its representation in the Mental Lexicon, Semantic fields, Semantic features, Sense relations of opposition and contrasts, hyponymy, lexical gaps, synonymy, marked and unmarked terms, part-whole relations, componential analysis. Non-lexical meaning – Phonetic meaning, Phonological meaning and Grammatical meaning. Semantic acquisition and semantic disability.

Unit 3

- Pragmatics – Theoretical background: Discourse, Deixis, Maxims and Truth relations, Pragmatic development with respect to speech act, Pragmatic disability with respect to some clinical disorders.

  Socio-linguistics – Language and dialect issues, various types of dialects. Diglossia. Stylistic variation of language- registers. Language contact-Creoles, Pidgins, Language maintenance, Language Shift and Language Death. Language Deficiency. Relation between Gender & Language, Relation between language and culture, religion, politics, etc.,

Unit 4

- Multilingual Issues– A brief introduction to the major language families of the world & language families of India. Language and thought relationship in view of Sapir-Whorf hypothesis: Linguistic determinism and Linguistic relativity.

- Cultural issues- Cultural diversity of India, Cultural issues in verbal & non-verbal communication. Multicultural & multilingual issues in rehabilitation with special reference to India.

References:

Unit 1

1. Akmajian Adrian, Demers A. Richard, Farmer A. Ann, Harnish M. Robert. (1995). Linguistics-An Introduction to Language and Communication (Fourth edition). MIT Press, Cambridge, MA, U.S.A.
2. Ball, Martin J., Michael R. Perkins, Nicole Müller and Sara Howard (eds). (2008). The Handbook of Clinical Linguistics. Blackwell Publishing.
3. Crystal, D. (2001). Clinical linguistics. In M. Aronoff & J. Rees-Miller, The Blackwell Handbook of Linguistics (Oxford: Blackwell), 673-82.
4. Cummings, L. (2008). Clinical Linguistics, Edinburgh: Edinburgh University Press Ltd.
5. Fromkin, Victoria; Bruce Hayes; Susan Curtiss, Anna Szabolcsi, Tim Stowell, Donca Steriade (2000). Linguistics: An Introduction to Linguistic Theory. Oxford: Blackwell.
6. Napoli, Donna Jo (1996). Linguistics: An Introduction. New York: Oxford University Press.
7. Saussure, Ferdinand de. (2001). Course in General Linguistics. Eds. Charles Bally and Albert Sechehaye. Trans. Roy Harris. La Salle, Illinois: Open Court.
8. Chomsky, Noam; and Halle, Morris. (1968). The sound pattern of English. New York: Harper & Row.
9. Goldsmith, John A (1995). "Phonological Theory". in John A. Goldsmith. The Handbook of Phonological Theory. Blackwell Handbooks in Linguistics. Blackwell Publishers.
10. Goldsmith, John A. (1989). Autosegmental and metrical phonology: A new synthesis. Oxford: Basil Blackwell.
11. Hooper, Joan B. (1976). An introduction to natural generative phonology. New York: Academic Press.
12. Jakobson, Roman; Fant, Gunnar; and Halle, Morris. (1952). Preliminaries to speech analysis: The distinctive features and their correlates. Cambridge, MA: MIT Press.
13. Kaisse, Ellen M.; and Shaw, Patricia A. (1985). On the theory of lexical phonology. In E. Colin and J. Anderson (Eds.), Phonology Yearbook 2 (pp. 1-30).
14. Lacy, de Paul. (2007). The Cambridge Handbook of Phonology. Cambridge University Press.
15. Ladefoged, Peter. (1982). A course in phonetics (2nd ed.). London: Harcourt Brace Jovanovich.
16. Pamela Grunwell (1987) Clinical Phonology (2nd edition). London: Croom Helm.
17. Pike, Kenneth. (1947). Phonemics: A technique for reducing languages to writing. Ann Arbor: University of Michigan Press.

18. Radford Andrew, Atkinson Martin, Britain David, Clahsen Harlad, Spencer Andrew. (1999). Linguistics: An Introduction. CUP, Cambridge.

Unit 2

1. Akmajian Adrian, Demers A. Richard, Farmer A. Ann, Harnish M. Robert. (1995). Linguistics-An Introduction to Language and Communication (Fourth edition). MIT Press, Cambridge, MA, U.S.A.
2. Bauer, Laurie. (2003). Introducing linguistic morphology (2nd ed.). Washington, D.C.: Georgetown University Press.
3. Bauer, Laurie. (2004). A glossary of morphology. Washington, D.C.: Georgetown UP.
4. Bubenik, Vit. (1999). An introduction to the study of morphology. LINCON coursebooks in linguistics, 07. Muenchen: LINCOM Europa.
5. Haspelmath, Martin. (2002). Understanding morphology. London: Arnold (co-published by Oxford University Press).
6. Katamba, Francis. (1993). Morphology. Modern linguistics series. New York: St. Martin's Press.
7. Matthews, Peter. (1991). Morphology (2nd ed.). CUP.
8. McLaughlin, Scott. (1998). Introduction to language development. Singular Publishing Group, USA.
9. Nida, E.A. (1946). Morphology (2nd Ed), The University of Michigan Press, Canada, US .
10. Radford Andrew, Atkinson Martin, Britain David, Clahsen Harlad, Spencer Andrew. (1999). Linguistics: An Introduction. CUP, Cambridge.
11. Spencer, Andrew and Zwicky, Arnold M. (Eds.) (1998). The handbook of morphology. Blackwell handbooks in linguistics. Oxford: Blackwell.
12. Van Valin, Robert D., and La Polla, Randy. (1997). Syntax: Structure, Meaning and Function. CUP
13. Akmajian Adrian, Demers A. Richard, Farmer A. Ann, Harnish M. Robert. (1995). Linguistics-An Introduction to Language and Communication (Fourth edition). MIT Press, Cambridge, MA, U.S.A.
14. Cruise, Alan (2000). Meaning and Language: An introduction to Semantics and Pragmatics, Palgrave MacMillan.
15. Cruise, D.A. (1986) Lexical Semantics. Cambridge.
16. Jaroslav Peregrin. (2003). Meaning: The Dynamic Turn. Current Research in the Semantics/Pragmatics Interface. London: Elsevier.
17. Lyons, John. (1977). (Reprinted in 1996). Semantics, volume I and II. CUP, Cambridge.
18. McLaughlin, Scott. (1998). Introduction to language development. Singular Publishing Group, USA.
19. Nielson, Hanne Riis; Nielson, Flemming (1995), Semantics with Applications, A Formal Introduction (1st ed.), Chicester, England: John Wiley & Sons.
20. P. Gardenfors. (2000). Conceptual Spaces. Cambridge, MA: MIT Press/Bradford Books.
21. Radford Andrew, Atkinson Martin, Britain David, Clahsen Harlad,
22. Spencer Andrew. (1999). Linguistics: An Introduction. CUP, Cambridge.
23. Ronald W. Langacker. (1999). Grammar and Conceptualization. Berlin/New York: Mouton de Gruyer.

Unit 3

1. Austin, J. L. (1962) How to Do Things With Words. Oxford University Press.
2. Carston, Robyn (2002) Thoughts and Utterances: The Pragmatics of Explicit Communication. Oxford: Blackwell.
3. Clark, Herbert H. (1996) "Using Language". Cambridge University Press.
4. Dijk, Teun A. van. (1977) Text and Context. Explorations in the Semantics and Pragmatics of Discourse. London: Longman.
5. Grice, Paul. "Logic and Conversation". Perspectives in the Philosophy of Language. (2000) ed. Robert Stainton.
6. Laurence R. Horn and Gregory Ward. (2005) The Handbook of Pragmatics. Blackwell.
7. Leech, Geoffrey N. (1983) Principles of Pragmatics. London: Longman.
8. Levinson, Stephen C. (1983) Pragmatics. Cambridge University Press.
9. Mey, Jacob L. (1993) Pragmatics: An Introduction. Oxford: Blackwell (2nd ed. 2001).
10. McLaughlin, Scott. (1998). Introduction to language development. Singular Publishing Group, USA.
11. Thomas, Jenny (1995) Meaning in Interaction: An Introduction to Pragmatics. Longman.
12. Verschueren, Jef. (1999) Understanding Pragmatics. London, New York: Arnold Publishers.
13. Watzlawick, Paul, Janet Helmick Beavin and Don D. Jackson (1967) Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies, and Paradoxes. New York: Norton.
14. Yule, George (1996) Pragmatics (Oxford Introductions to Language Study). Oxford University Press.
15. Chambers, J.K. (1995), Sociolinguistic Theory, Oxford, England: Blackwell; p206-208.
16. Coates, Jennifer (1993), Women, Men and language. London: Longman
17. Coates, Jennifer (ed.) (1998), Language and Gender: A Reader. Oxford: Blackwell.
18. Lakoff, R. (1975). Language and Women's Place. New York: Harper & Row.
19. Meyerhoff, Miriam. (2006). Introducing Sociolinguistics. New York: Routledge.
20. Milroy, Lesley and Gordon. Matthew. (2003) Sociolinguistics: Method and Interpretation London: Blackwell Publishing.
21. Trudgill, Peter. (2000). Sociolinguistics: An Introduction to Language and Society (4th Ed.). London: Penguin Books.
22. Wardhaugh, Ronald. (2004) An Introduction to Sociolinguistics, Fourth Edition. London: Blackwell Publishing.

Unit 4

1. Abbi, Anvita (2001). A manual of linguistic field work and structure of Indian languages. (LINCOM handbooks in linguistics 17). Munich: LINCOM Europa.
2. Barzilai, Gad. (2003). Communities and Law: Politics and Cultures of Legal Identities University of Michigan Press.
3. Carbaugh, Donal. (1990). "Cultural Communication and Intercultural Contact." LEA.
4. Fodor, J. (1975). The Language of Thought, Harvard University Press.
5. Geertz, Clifford. (1973). The Interpretation of Cultures: Selected Essays. New York.
6. Jary, D. and J. Jary. (1991). The Harper Collins Dictionary of Sociology. New York: HarperCollins.

7. Kay, P. and W. Kempton. (1984). "What is the Spair-Whorf Hypothesis?" American Anthropologist 86(1): 65-79.
8. Kroeber, A. L. and C. Kluckhohn, (1952). Culture: A Critical Review of Concepts and Definitions. Cambridge, MA: Peabody Museum
9. McClenon, James. "Tylor, Edward Burnett". (1998). Encyclopedia of Religion and Society. Ed. William Swatos and Peter Kivisto. Walnut Creek: Alta Mira,. 528-29.
10. Reese, W.L. (1980). Dictionary of Philosophy and Religion: Eastern and Western Thought. New Jersey U.S., Sussex, U.K: Humanities Press.
11. White, L. (1949). The Science of Culture: A study of man and civilization. New York: Farrar, Straus and Giroux

Paper Code: SLP 1.5 - SC: *Technology for speech language and hearing*

Objectives:-

a. To give an overview of the latest technology involved in speech Acoustics, Signal processing, Instrumentation etc.
b. To provide fundamental concepts of the technology used in the instruments for diagnostics and therapeautics in Speech Language Sciences and Pathology
c. To learn the various signal processing strategies used in hearing aid amplification, noise reduction, channel based gain and output control.
d. To understand and observe the principle of working and functioning of equipments used for measurement of sounds and calibration of diagnostic equipments.
e. To learn practically the procedure for calibration of audiometers, middle ear analyzer, Otoacoustic emission analyzer, BERA etc.
f. To lay the foundation of ICT (Information and Communication Technology) concepts and illustrate the applications of ICT in Speech & Language Pathology
g. To demonstrate practically the concepts in basic principle of operation of transducers, amplifiers, display units and other signal processing and signal acquisition elements of bio medical instrumentation in speech and hearing.

Course Content:

Unit 1: Introduction to Transducers and Signal Processing components

Basic principle of operation of Microphones, Headphones, Insert Receivers, Loudspeakers and Bone Vibrators
Structure and working of Preamplifiers, Main amplifiers and Power amplifiers
Introduction to Batteries, AC and DC Power supplies
Introduction to Computers, Peripherals, computer networks, Operating systems and Application Softwares.

Unit 2: Introduction to Digital signal processing and Communication technology

Block diagram of a digital signal processing system
Principle and Functioning of Analog to Digital converter and Digital to Analog converter
Fundamental concepts of Digital Signal Processing - Decomposition, Processing and Synthesis
Implementation of Filters using DSP
Implementation of Amplifiers using DSP
Basic technique of amplitude and frequency modulation, structure of amplitude modulator, frequency modulator and pulse modulation systems.
Satelite communication and implementation of telediagnosis & telerehabilitation system.

Unit 3: Signal processing in hearing aids, Speech processing and analysis

a. Block diagram of analog and digital hearing aids and their comparison.
b. Basic architecture of amplifiers in digital hearing aids]
c. Signal processing techniques in channel separation, non-linear amplification, output limiting, noise control, feedback cancellation etc.
d. Block diagram, structure, implementation, merits and demerits of group hearing aids and assistive listening devices.
e. Basic architecture of speech processor in cochlear implants, its principles of working and speech processing strategies.
f. Fundamentals of Mathlab based signal processing and its application in audiology.
g. Representation of a speech waveform in time and frequency domain
h. Short time analysis techniques

Techniques for estimating long term average spectrum

i. Applications of these techniques in
    - Speaker identification
    - Speaker verification
    - Speech recognition
    - Speech synthesis

Unit 4: Instrumentation in Audiology & Speech Language Pathology

Block diagram and functional description of :

a) Speech Spectrograph and CSL
b) Voice analysis systems
c) Electro glotograph
d) Articulograph
e) Nasometer
f) Fibre optic endoscope
g) Therapeutic Instruments
h) AAC devices

Basic structure and functioning of equipments and components used for measurement of sound and calibration

Block diagram, functional description and calibration procedure for :

a) Audiometer
b) Middle ear Analyzer
c) Otoacoustic Emission Analyzer
d) Instrumentation for Auditory Evoked Potential

Importance of grounding, procedure for making a perfect electric ground, checking the perfection of an electric ground.

Procedure for noise auditing.

Room acoustics, factors to be considered while constructing an audiometric test room, sound proofing techniques.

Procedure for measurement of reverberation time
Fundamentals of imaging techniques such as X-Ray, CT scan, MRI, FMRI etc.

Reference:

1. The Acoustic Analysis of Speech
   Singular Publishing Group. Kent, Ray D. K., Read, Chales.
2. Digital Processing of Speech Signlas. Prentice-Hall Inc. Lawerence R. Rabiner, Schafer, Ronald W.
3. Introduction to Digital Signla Processing. Prentice-Hall of India Pvt., Ltd. Johnson, R.
4. Applications of Digital Signal Processing to Audio and Acoustics. Kulwer Academic Publishers. Brandenburg, Kerlheinz.
5. Digital Signla Processing. Prentice Hall of India Pvt. Ltd. Oppenheim Av Schafer, Ronald W.
6. Science of Sound. Addison Wesley 3rd Ed. Richard Moore, Ruossing, Thomas D. Wheeler Paul A.
7. Encyclopedia of Acoustics. John Wiley andSons. Crocker, Malcoem J.

Paper Code: SLP 1.5 - SC- *Assessment and Management Of (Central) Auditory Processing Disorders*

Objectives: After completing this subject, the candidate should be able to

1. List the types of (C) APD and explain their physiological bases
2. List the signs and symptoms of (C) APD and, correlate them with different central auditory processes
3. List different tests of (C) APD and independently design appropriate test protocol for clients with different signs and symptoms
4. List and explain the factors affecting the assessment
5. Explain construction and standardization of test of (C) APD
6. Explain management strategies and techniques for improving different central auditory processes

Unit 1: Introduction to (Central) Auditory Processing Disorder [(C) APD] & Screening

- Definition
- Processes involved such as
  - Binaural integration
  - Binaural separation
  - Temporal processing
  - Auditory closure
  - Binaural interaction
  - Phoneme synthesis
  - Auditory memory and sequencing
  - Sound localization and lateralization
- Neural maturation and auditory processing
- Neural degeneration and auditory processing
- Signs and symptoms of (C) APD
- Classification of auditory processing disorder
- (C) APD as a co-morbid disorder
- Screening for (C)APD
  - Questionnaires based
  - Sub-tests of speech / language tests
  - Audiological tests

Unit 2: Diagnostic Assessment of APD

- Physiological assessment in assessment of APD such as
  - ABR
  - AMLR
  - ALLR
  - MMN
  - P300
  - Contralateral suppression of OAEs

- Behavioural tests in assessment of (C) APD
    - Tests for assessing temporal processing
    - Tests for assessing Binaural interaction
    - Tests for assessing Binaural integration/separation
    - Monaural low redundancy tests
    - Tests for assessing auditory memory and sequencing
- Assessment of (C) APD in subjects with peripheral hearing loss
- Factors affecting assessment of (C) APD
    - Factors related to subject
    - Factors related to procedure
- Construction and standardisation of tests for assessment of (C) APD

Unit 3: Overview to management of (C) APD

- Environmental modifications
- Devices for subjects with auditory processing disorder
- Compensatory strategies
- Role of auditory plasticity in management of (C) APD
- Direct remediation techniques
    - Bottom-up approaches
    - Top-down approaches
- Phoneme synthesis training
- Metacognitive and metalinguistic approaches

Unit 4: Management of (C) APD – Process specific techniques 8 hours

- Auditory perceptual training for problems in
    - Binaural integration
    - Binaural separation
    - Temporal processing
    - Auditory closure
    - Binaural interaction
    - Phoneme synthesis
    - Auditory memory and sequencing
    - Sound localization and lateralization
- Factors affecting management of (C) APDs
- Team approach for assessment and management of (C) APD

Reference:

Unit 1

1. ASHA Task force (1996). Central auditory processing: current status of research and implications for clinical practice. American Journal of Audiology, 5, 41-54.
2. Bellis, T. J. (2003). Assessment and management of central auditory processing disorders in the educational setting – from science to practice. London: Singular publishing group Inc.
3. Bhatnagar, S. C., & Andy, O. J. (1995). Neuroscience for the study of communicative disorders. Baltimore: Williams & Wilkins.
4. Chermak, G. D., & Musiek, F. E. (2006). Handbook of (Central) auditory processing disorders- auditory neuroscience and diagnosis. Volume I. San Diego: Singular Publishing Group Inc.
5. Geffnar, D., & Ross-swain, D. (2007). Auditory processing disorders: assessment, management & treatrment.
6. Katz, J. (1994). Handbook of clinical Audiology. (4th Edn), Baltimore: Williams & Wilkins.
7. Keith, R. W. (2000). SCAN-C: Test for auditory processing disorders in children-revised. Antonio, TX: The Psychological Corporation.
8. Parthasarathy, T. K., & Bhatnagar, S. C. (2005). An Introduction to Auditory Processing Disorders in Children. New Jersy: Lawrence Erlbaum Associate.
9. Roser, R. R., Valente, M. & Hosford-Dunn, D (2000). Audiology diagnosis. New York: Thieme.

Unit 2

1. Baran, J., & Musiek, F. (1999). Behavioral assessment of the central auditory nervous system. In Musiek, F. & Rintelmann, W. (Eds.), Contemporary perspectives in hearing assessment (pp. 375-414). Boston: Allyn and Bacon.
2. Bellis, T. J. (2003). Assessment and management of central auditory processing disorders in the educational setting – from science to practice. London: Singular publishing group Inc.
3. Chermak, G. D., & Musiek, F. E. (2006). Handbook of (Central) auditory processing disorders- auditory neuroscience and diagnosis. Volume I. San Diego: Singular Publishing Group Inc.
4. Geffnar, D., & Ross-swain, D. (2007). Auditory processing disorders: assessment, management & treatrment.
5. Jerger, J., Thibodeau, L., Martin, J., Mehta, J., Tillman, G., & Greenwald, R., et al. (2002). Behavioral and electrophysiologic evidence of auditory processing disorder: A twin study. Journal of the American Academy of Audiology, 13, 438-460.
6. Katz, J. (1994). Handbook of clinical Audiology. (4th Edn), Baltimore: Williams & Wilkins.
7. Keith, R. W. (1981). Central auditory and language disorders in children. Houston: College-Hill Press.

8. Parthasarathy, T. K., & Bhatnagar, S. C. (2005). An Introduction to Auditory Processing Disorders in Children. New Jersy: Lawrence Erlbaum Associate.
9. Pinheiro, M. L., & Musiek, F. E. (1985). Assessment of central auditory dys-function: foundations and clinical correlates. Baltimore: Williams & Wilkins.
10. Roser, R. R., Valente, M. & Hosford-Dunn, D (2000). Audiology diagnosis. New York: Thieme.

Unit 3

1. ASHA Task force (1996). Central auditory processing: current status of research and implications for clinical practice. American Journal of Audiology, 5, 41-54.
2. Bellis, T. J. (2003). Assessment and management of central auditory processing disorders in the educational setting – from science to practice. London: Singular publishing group Inc.
3. Bellis, T. J. (2002). Developing deficit-specific intervention plans for individuals with auditory processing disorders. Seminar in Hearing, 23(4), 287-297.
4. Chermak, G. D. (1998). Managing central auditory processing disorders: Metalinguistic and metacognitive approaches. Seminars in Hearing, 19(4), 379-392.
5. Chermak, G. D., & Musiek, F. E. (2006). Handbook of (Central) auditory processing disorders – comprehensive Intervention. Volume II. San Diego: Singular Publishing Group Inc.
6. Chermak, G. D., & Musiek, F. E. (2002). Auditory training: Principles and approaches for remediating and managing auditory processing disorders. Seminars in Hearing, 23(4), 297-308.
7. Friel-Patti, S. (1999). Treatment for central auditory processing disorders: clinical decision making in the assessment and intervention of CAPD. Languages, speech and hearing services in Schools, 30, 345-352.
8. Geffnar, D., & Ross-swain, D. (2007). Auditory processing disorders: assessment, management & treatrment.
9. Johnson, C. D., Benson, P. V., & Seaton, J. B. (1997). Educational audiology handbook. San Diego: Singular publishing group.
10. Katz, J., Stecker, N. A., & Handerson, D. (1992). Central auditory processing: A transdisciplinary view. St. Louis: Mosby.
11. Keith, R. W. (1981). Central auditory and language disorders in children. Houston: College-Hill Press.
12. Master, M. G., stecker, N. A., & Katz, J (1998). Central auditory processing disorders: mostly management. Boston: Allyn & Bacon.
13. Musiek, F. E. (1999). Habituation and management of auditory processing disorders: overview od selected procedures. Journal of American Academy of Audiology. 10, 329-342.
14. Willeford, J. A & Burleigh, J. M. (1985). Handbook of CAPD in Children. Orlando: Grune & Stratton Inc.

Unit 4

1. Bellis, T. J. (2003). Assessment and management of central auditory processing disorders in the educational setting – from science to practice. London: Singular publishing group Inc.
2. Bellis, T. J. (2002). Developing deficit-specific intervention plans for individuals with auditory processing disorders. Seminar in Hearing, 23(4), 287-297.
3. Chermak, G. D., & Musiek, F. E. (2006). Handbook of (Central) auditory processing disorders – comprehensive Intervention. Volume II. San Diego: Singular Publishing Group Inc.
4. Friel-Patti, S. (1999). Treatment for central auditory processing disorders: clinical decision making in the assessment and intervention of CAPD. Languages, speech and hearing services in Schools, 30, 345-352.
5. Geffnar, D., & Ross-swain, D. (2007). Auditory processing disorders: assessment, management & treatrment.
6. Master, M. G., stecker, N. A., & Katz, J (1998). Central auditory processing disorders: mostly management. Boston: Allyn & Bacon.
7. Musiek, J. F., Baran, J. A. & Pinheiro, M. L. (1994). Neuro-audiology:case studies. San Diego: Singular Publishing group.
8. Musiek, F. E., Shinn, J., & Hare, C. (2002). Plasticity, auditory training, and auditory processing disorders. Seminars in Hearing, 23, 273-275.
9. Roser, R. R., Valente, M. & Hosford-Dunn, D (2000). Audiology diagnosis. New York: Thieme.
10. Willeford, J. A & Burleigh, J. M. (1985). Handbook of CAPD in Children. Orlando: Grune & Stratton Inc.

Paper Code: SLP 1.6 - HCC: *Clinical Practicum I*

SEMESTER II

Paper Code: SLP 2.1 - HC: *Language, Cognition and Brain*

OBJECTIVES

After studying this course the students shall be able to:

- Understand and appreciate the terminology used in the field of language, cognition and brain
- Relate information processing as applicable to language and cognition
- Describe and evaluate the various aspects of language and its relation to cognitive behaviour
- Describe and assess various cognitive behaviours related to the study of language
- Understand the role of metacognition, evaluation of cognitive and metacognitive behaviour
- Design and develop tests and tools for assessment and management of cognitive and metacognitive skills in children and adults.

COURSE CONTENT

Unit 1: Basic terminology and definitions of language, cognition and brain

1.1 Language-Description of phonology, morphology, syntax, semantics, pragmatics and communication
1.2 Cognition- Description of cognitive processes, cognitive mapping, cognitive mechanisms, concept, schema and properties
1.3 Attention-Description and types -focused, sustained, divided, alternating, selective
1.4 Memory—Description and types -sensory memory, echoic memory, iconic memory, working memory, eidetic memory, long term memory, declarative memory, procedural memory, episodic memory, semantic memory
1.5 Recognition and recall, Reasoning -Inductive and deductive, Thinking-Convergent and divergent Interference-Proactive and retroactive, and metacognition

Unit 2: Cognitive psychology- Information processing and electrophysiological basis of memory and attention processes and its implications for speech and language disorders

2.1 Models of attention (Broadbent's Bottleneck model, Norman and Bobrow's model, Kitan and Wolfson's model) and memory (Atkinson and Shiffrin's multistore model, Craik and Lockhart's Levels of processing model, Baddley's working memory model)

2.2 Information processing models of language and cognitive processes-Connectionist, hierarchical, process, interactive, computational, neural network, bilingual models

2.3 Role of attention and memory in the development speech and language

2.4 Language acquisition-neurolinguistic and cognitive processes

2.5 Role of sensory motor skills in the development of language and cognition, Development of language and cognitive processes

Unit 3: Assessment of cognitive processes with reference to language function

3.1 Formal and informal assessment of cognitive processes relevant to language function – in children and adults

3.2 Relevance of assessment of attention, discrimination, perception, memory, reasoning, problem solving, organization

3.3 Information processing – simultaneous and sequential processing, rhyming, temporal and spectral processing of information

3.4 Specific tests- test of everyday Attention (TEA), Stroop test, vigilance test, Digit span, Fruit distraction, scattered scanning, paced auditory serial attention, Ross information processing assessment RIPA, CLAP, CLIP, software for cognitive assessment , ITPA.

3.5 Assessment of play as a part of cognitive development, adaption of existing tests for cognitive linguistic assessment

Unit 4: Team intervention for Cognitive communicative rehabilitation

4.1 Review of available surgical, pharmacological, electro-physiological treatment for persons with communication disorders

4.2 Effect of the above on attention, STM, naming, fluency, discourse, verbal comprehension with evidences from clinical population.

4.3 Effects of surgical, pharmacological, electro-physiological treatment on cognitive-linguistic function

4.4 Conceptual clarification of cognitive, communicative and alternative rehabilitation on children and adults

4.5 Definition of cognitive communicative rehab, issues related to language therapy and cognitive communicative therapy, approaches and models of cognitive communicative intervention

References:

Unit 1: Basic terminology and definitions of language, cognition and brain

1. Pattern of Language- Papers in General, Descriptive and Appplied Linguistics, Angus Mclntosh, M A K Halliday, 1967
2. Readings in Perception David C.Beardslee & Michael Wertheimer, 1967
3. Development of the Perceptual World, Gardner Murphy , Charles M.Solley, 1958
4. Language and Communication, George A.Miller, 1951
5. The Structure of Language, Readings in the Philosophy of Language, 1964
6. Neural models of language processes, Arbib et aal., 1982
7. Cognitive Neurophysiology and neurolinguistics-Advances in models of cognitive function and impairment, Caramazza a (ed.) 1990.
8. Speech language and communication, Miller J.I., Eimas, P.D. 1995

Unit 2: Cognitive psychology- Information processing and electrophysiological basis of memory and attention processes and its implications for speech and language disorders

1. Elements of Neurophysiology- Selective Processes in Vision and Learning, Sidney Ochs, 1965
2. Attention, Sidney Ochs, 1969
3. Perception, Julian E.Hochberg, 1969
4. Research in Perception, Learning and Conflict, Advancing Psychology Science, Fillmore H.Sanford, E.John Capaldi, 1969
5. The Experimental Psychology of Sensory Behavior, John F. Corso, 1967
6. Information Processing in the Nervous System, K.N.Leibovic, 1969
7. Neuropsychology of language, reading and spelling, Kirk U (ed.) 1983

Unit 3: Assessment of cognitive processes with reference to language function

1. Sensory Neurophysiology -With Special Reference to the Cat , James C. Boundreau, Chiyeko Tsuchitani, 1973
2. Sensation and Perception, Jozef Cohen, 1969
3. Methods in Psychobiology- Specialized Laboratory Techniques in Neuropsychology and Neurobiology, 1969
4. Efficient Organization and the Integration of Behaviour, R.D.Myers, 1973
5. On the Biology of Learning, Karl H.Pribram, 1969

Unit 4: Team intervention for Cognitive communicative rehabilitation

1. Restoration of Function After Brain Injury, A.R.Luria, 1963
2. Psychology of Human Growth and Development, Warren R.Baller, Don C.Charles, 1961
3. The Psychology of Adolescence Behavior and Development, John E.Horrocks, 2nd Edn. 1962
4. Cognitive-behavior therapy for people with learning disability, Kroese, S. etal., 1997
5. Cognitive disorders-Pathophysiology and treatment, Thal L.J. et al., 1992

Paper Code: SLP 2.2 - HC: *Maxillofacial anomalies and phonological disorders*

Objectives

- Understanding of nature of phonological development
- Understanding the nature of phonological and articulatory disorders in children with cleft palate
- Exploring the current issue on assessment on velopharyngeal closure and resonatory disorders
- Understanding the current issues on rehabilitation from allied professionals and speech therapy

COURSE CONTENT

Unit 1

- Co-articulation – Nature, definition, kinds (anticipatory, carryover), Models of coarticulation (feature based, syllabic and allophonic based, target based, physiologically based.
- Physiological / acoustical / perceptual studies on coarticulation
- Effects of coarticulation (position & juncture effect, feature effect, transition effect, direct effect)
- Coarticulation in speech disorders – measurement of coarticulation and remediation.

Unit 2

- Theories of phonological developments, novel phonological developments.
- Application of phonological theories in evaluation and management of phonological disorders
- Metaphon theory and therapy and application to the rehabilitation of phonological disorders.
- Metalinguistic abilities in phonological disorders
- Phonological processes – types, analysis and phonological processes in various communication disorders.

Unit 3

- Embryological development of the maxillofacial region
- Early intervention of cleft lip and palate – current issues, protocol
- Phonetic development in CLP – method adopted to study phonological development
- Velopharyngeal mechanism – normal physiology, velopharyngeal dysfunction in CLP
- Method of measurement of velopharyngeal closure.

Unit 4

- Perception assessment of CLP speech
- Speech assessment protocols
- Acoustic Characteristics of CLP speech
- Rehabilitation of CLP – surgery, prosthesis, speech therapy

References

Unit 1

1. Ball, M., & Kent, R. (1997). *The new phonologies: Development in clinical linguistics*. San Diego: Singular.
2. Ball & Duckworth (1996). Advances in Clinical phonetics
3. Bauman- Wrangler, J.(2009). Introduction to phonetics and phonology from concepts to transcription. Boston, MA: Pearson.
4. Bernthal, J. E., Bankson, N. W., & Flipsen, P. (2009). Articulation and Phonological Disorders: Speech Sound disorders in Children, 6th Ed. Boston, MA: Pearson.
5. Clark & Yallop (1990). An Introduction to Phonetics and Phonology
6. Hardcastle & Hewlett (1999). Co articulation Theory, Data and Techniques
7. Hewlett & Beck (2006). An Introduction to the Science of Phonetics

Unit 2

1. Collins & Mees (2008). Practical phonetics and PhonologyP A resource book for students
2. Elbert, M., & Gierut, J. A. (1986). Handbook of clinical phonology: Approaches to assessment and treatment. San Diego: College Hill Press.
3. Gordon-Brennan, M.E., & Weiss, C.E. (2007). Clinical Management of Articulatory and Phonologic Disorders (3rd ed.) United States of America: Lippincott Williams & Wilkins.
4. Klein, E. S. (1996). Clinical phonology: Assessment and treatment of articulation disorders in children and adults. San Diego, CA: Singular.
5. Ladefoged, P (1975). A course in phonetics
6. Mac Neilage, P F. (1983).The Production of Speech.
7. Mc Leod & Singh (2009). Speech Sounds: A practical guide to typical and atypical speech
8. Penabrooks and Hegde, M N (2000). Assessment and Treatment of articulation and phonological disorders
9. Roca & Johnson (1999). A Course in Phonology. Oxford: Blackwell.
10. Shriberg & Kent (1982). Clinical phonetics
11. Vihman, M. M. (1996). Phonological Development: The Origins of Language in the Child. Cambridge, MA: Blackwell.
12. Yeni-Komshian et al.(1980).Child phonology. Vol 1. Production

Unit 3

1. Falzone. P, Jones . M. A. & Karnell . M. P. (2001). Cleft palate speech. III edition, Mosby .Inc
2. Grunwell . P (1993). Analysing cleft palate speech. Whurr publishers ltd .London
3. Kahn. A. (2000). Craniofacial anomalies: A beginner's guide for speech language pathologists . Singular publishing group. California

4. Kummer .A.W. (2007). Cleft palate and craniofacial anomalies The effects on speech and resonace . Singular publishing. Thopson learning
5. McWilliams, B.J. (1990). Cleft palate speech. Philadelphia: B.C. Decker
6. Moller . T. k & Starr (1992) Cleft palate: Interdisciplinary issues and management. Pro –ed Austin
7. Ramp . D. L, Pannabacker M, Kinnebrew (1984) Velopharyngeal incompetency : A practical guide for evaluation and management Pro –ed , Austin
8. Shprintzen . R.J. & Bardach J (1995). Cleft palate speech management: A multidisciplinary approach. Mosby . Inc
9. Spristersbach, D. (1968). Cleft palate and communication. New York: Academic Press.
10. Stengelhofen . J. (1993) . Cleft palate : The nature and remediation of communication problem. Whurr publishers ltd .London

Unit 4

1. Berkowitz. S.(2001). Cleft lip and palate: Perspectives in management. Vol 1. Singular publishing group. Inc
2. Bzoch, K. (Ed) (1989). Communicative disorders related to cleft lip and palate. Boston: Little Brown Co
3. Falzone. P , Jones . M. A. & Karnell . M . P . (2001). Cleft palate speech. III edition,, Mosby .Inc
4. Golding . K. J & Kushner (2004) Therapy techniques for cleft palate speech and related disorders , Singular Thompsonlearning
5. Grabb, W.C. & Others (1971). Cleft lip and palate surgical, dental and speech aspects. Boston: Little Brown Co
6. Kummer .A.W. (2007) . Cleft palate and craniofacial anomalies The effects on speech and resonance . Singular publishing. Thopson learning
7. McWilliams, B.J. (1990). Cleft palate speech. Philadelphia: B.C. Decker
8. Morley (1970). 7th Ed. Cleft palate and speech. Edinburgh, Livingstone
9. Peterson , Falzone , Cardomone , Karnell (2006). The clinician guide to treating cleft palate speech . Mosby . Elsevier
10. Skelly (1974). Glossoectomee: Speech rehabilitation. Springfield: Charles C Thomas Shprintzen . R. J . & Bardach . J . (1995). Cleft palate speech management: A multidisciplinary approach . Mosby . Inc
11. Watson . A. C. H., Sell. D. A & Grunwell. P. (2001). Management of cleft lip and palate. Whurr publishers ltd. London

Paper Code: SLP 2.3 - HC: *Child Language Disorders*

Objectives

- To facilitate knowledge of various theories and models of language acquisition
- To facilitate understanding of developmental and acquired language disorders in children
- To facilitate understanding of issues related to differential diagnosis and assessment of child language disorders
- To facilitate understanding of issues related to management of child language disorders

COURSE CONTENT

Unit 1

- Current theories of language acquisition
- Models of language acquisition and their applications in child language disorders.
- Psycholinguistic, neurolinguistic and cognitive processes in child language disorders.

Unit 2

- Developmental and acquired language disorders in children- Linguistic, pragmatic, prosodic, behavioral and literacy characteristics in children with: (a) Mental Retardation (b) Hearing Impairment (c) Autism and Pervasive Developmental disorders (d) Specific Language Impairment (e) Aphasia (f) Dyslexia (g) Attention Deficit Hyperactivity Disorders (h) Seizure and other related disorders

Unit 3

- Co-morbidity of child language disorders – Differential diagnosis & assessment of: (a) Cognitive – linguistic (b) Psycholinguistic & (c) Neurolinguistic parameters.
- Present status & prospects of child language disorders w.r.t assessment.

Unit 4

- Management- medical, surgical, linguistic, behavioral, remedial, physio-occupational & special educational perspectives.
- Present status & prospects of child language disorders w.r.t management

References

Unit 1

1. Nelson N.W. (1998). Childhood language disorders in contest-infancy through adolescence. Allyn and Bacon, Boston
2. Shyamala. K. C. (2011). Language disorders in Children. Clinical Linguistic series-1. CIIL publications, Mysore.
3. Karanth, P. (1994). Assessment of disordered language: The clinicians dilemmas. In B. Lakshmi Bai and D. Vasanta (Eds.). Language Development and Language Disorders: Perspectives from Indian Languages. New Delhi: Bahri Publications.
4. Holland, A.L. (Ed.). (1984). Language disorders in children: Recent advances. California: College Hill Press.

Unit 2

1. Andrey L Holland (Ed) (1984). Language disorders in children – recent advances College Hill Press, California
2. Shyamala. K. C. (2011). Language disorders in Children. Clinical Linguistic series-1. CIIL publications, Mysore.
3. Leonard, L. (1992). The use of morphology by children with specific learning impairment: Evidence from three languages. In R. Chapman (Ed.). Processes in Language Acquisition and Disorders. Chicago: Mosby-yearbook.
4. Crystal, D. Fletcher, P. & Garman, M. (1976). The grammatical analysis of language disability. London: Edward Arnold.
5. Karanth, P. (1992). Developmental dyslexia in bilingual biliterates. Reading and writing 4.
6. Karanth, P. (1998). Reading and Reading disorders: An Indian perspective. In Osmania Papers in Linguistics. Special Volume on Applied Psycholinguistics edited by D. Vasanta. Osmania Papers in Linguistics. Vol. 22-23, 149-159.

Unit 3

1. Gallagher, T.M. (1991). Pragmatics of language- Clinical practice issues, Singular publishing co., California.
2. Law, J (1992). The early identification of language impairment in children: therapy in clinical practice. Chapman and Hall, N.Y.
3. Zeigler, W and Deger, K (ed) (1998). Clinical phonetics and linguistics. Whurr pub, London.
4. Shyamala. K. C. (2011). Language disorders in Children. Clinical Linguistic series-1. CIIL publications, Mysore.

Unit 4

1. Adler, S (1979). Interdisciplinary language intervention programme for the retarded.
2. Shyamala. K. C. (2011). Language disorders in Children. Clinical Linguistic series-1. CIIL publications, Mysore.
3. Crystal (1976). Child language, learning and linguistics-an overview for teaching and therapeutic professions. Edward Arnold, London.
4. Fey, M (1986). Language intervention with young children, San Diego, College – Hill Press.

Paper Code: SLP 2.4 - SC: *Clinical Neuropsychology*

Objectives

- To prepare students in the specific area of neuropsychology as a discipline seeking to understand brain-behavior relationships in the context of disorders in human communication.
- To train students into skills and competencies required for incorporating the dimension of clinical neuropsychology in their practice for identification and management of communication disorders
- To sensitize pupils on the ethical aspects of neuropsychological assessment and rehabilitation when dealing with communication disorders in special populations of individuals like children with special needs, brain-injured adults and the elderly.
- To develop acumen for integrating neuropsychological perspective in the field of research in communication disorders.

COURSE CONTENT

Unit 1

- Clinical Neuropsychology: Meaning, Definition, History, & Applications to Contemporary trends in understanding brain behavior relationships – Methods of Study: Ablation Studies – Split Brain -
- Basics of Neuroanatomy and Neurophysiology: Nervous System - Structure and Functions – Divisions of Cortical Sub-Cortical Regions
- Neural Connectivity, Conduction and Synaptic Transmission - Localization and Lateralization of Brain Functions: Lobe & Hemispheric Functions -Plasticity of Functions
- Overview of Organic Brain Syndromes: Dementias, Organic Psychoses, Convulsion Disorders & Degenerative Conditions

Unit 2

- Clinical Neuropsychological Assessment: Meaning and Approaches – Fixed and Flexible Battery Approaches – Need and Purpose of Assessment – Changing Scenario of Clinimetry: Issues and Problems
- Ethical Issues in Assessment of Children and Elderly
- Test Battery Approaches: LNNB and HRNTB – Adult and Child Versions; Geriatric Neuropsychology:
- Indian Scales: AIIMS Neuropsychological Test Battery, NIMHANS Neuropsychological Test Battery and Functional Neuropsychological Assessment Battery – Structure and Observation of Clinical Testing

Unit 3

- Clinical Neuropsychological Assessment & Profiling of Adults and Children: RINTB - Case Study – Progress and Problems in Child Neuropsychology
- Assessment of Cognition – Tests of Attention/Concentration; Memory, Thinking and Intelligence - Clinical Mental Status Examination of Neuropsychological Functions
- Contemporary Brain Imaging Techniques & Electrophysiological Methods: EMG – GSR - fMRI - CT - EEG - MEG - CBF - PET - Ablation Studies - Split Brain Research - Dichotic Listening – Clinical Case Studies - Lesion Studies; Functional Behavioral Profiling

Unit 4

- Neuro-rehabilitation: Meaning, Purpose and Theories - Plasticity of Brain Functions; Functional Adaptation; and Artifact Theories - Meaning, Approaches and Techniques: Remediation, Compensation and Adaptive – Measuring Efficacy and Outcomes
- Attention and Memory Retraining Programs – Use of External Aids – Awareness Training – Working with Families - Variables in Neurobehavioral Recovery: Demographic Variables – Injury related variables – psychological factors – Neuro-plasticity and Synaptic Reorganization – Factors in Training Program
- Neuropsychology of learning disabilities, mental retardation and related developmental disabilities – Implications for Assessment and Remediation

References

Unit 1

1. Bloom, F. & Lazeron, A. (1996). *Brain, mind, and behavior* (2nd ed.). New York: Freedman.
2. Kolb, B. & Whishaw, I.Q. (1996). *Fundamentals of human neuropsychology* (4th ed.). New York: Freeman Press.
3. Luria, A.R. (1973). *The Working brain: An introduction to neuropsychology*. New York: Basic Books.
4. Fletcher-Janzen, E. Reynolds, C. R., Strickland, T. L., et al. (Eds.) (2000). *Handbook of cross-cultural neuropsychology*. Kluwer Academic Publishers. (ISBN 0 306 463237)
5. Rosenzweig, M.R., Leiman, A.L. & Breedlove, S.M. (1999). *Biological psychology: An introduction to behavioral, cognitive, and clinical neuroscience* (2nd ed.). Sunderland, MA: Sinauer Associates, Inc.
6. Sunderland, M.A.(1998). *Introduction to behavioral, cognitive, and clinical neuroscience* (2nd ed.). Sinauer Associates, Inc.
7. Trimble, M. (1996). *Biological Psychiatry* (2nd ed.). New York: Wiley.

Unit 2

1. Ferraro, F.R. (Ed.) (2001). *Minority and cross-cultural aspects of neuropsychological assessment*. Lisse, Netherlands: Swets & Zeitlander Publishers.
2. Grant, I. & Adams, K. (1996). *Neuropsychological assessment of neuropsychiatric disorders*. New York: Oxford University Press.
3. Lezak, M.D. (1995). *Neuropsychological Assessment* (3rd ed.). Oxford University Press: New York.
4. Albert, M.S., and Moss, M.B. (1988). Geriatric Neuropsychology. New York: Guilford.
5. Tuokko, H., and Hadjistavropoulos, T. (1998). An assessment and guide to geriatric neuropsychology. London: Lawrence Erlbaum.
6. Gregory, R.J. (2000). *Neuropsychological and geriatric assessment in Psychological Testing: History, Principles, and Applications* (3rd ed.). New York: Allyn & Bacon.
7. Tramontana, M.G., and Hooper, S.R. (1995). Advances in Child Neuropsychology. New York: Springer-Verlag.

Unit 3

1. Caley, A. (1999). Assessment of Neuropsychological Functions in Psychiatric Disorders. New York: American Psychiatric Publishing.
2. Lezak, M., Loring, D.W., and Hannay, H.J. (2004). Neuropsychological Assessment. Fourth Edition. New York: Oxford University Press.
3. Franzen, M.D., and Robbins, D.E. (2000). Reliability and Validity in Neuropsychological Assessment. Second Edition. New York: Springer-Verlag.
4. Schoenberg, M.R. and Scott, J.G. (Eds.). (2011). The little black book of Neuropsychology.: A Syndrome based Approach. New York: Springer-Verlag.

Unit 4

1. Sohlberg, M.M., and Mateer, C.A. (2001). Cognitive Rehabilitation: An Integrative Neuropsychological Approach. New York: The Guilford Press.
2. Banks, M. E. & Ackerman, R. J. (1997). *Ethnogeriatric issues in neuropsychological assessment and rehabilitation, Topics in Geriatric Rehabilitation, 12*, 47-61.

Paper Code: SLP 2.4 - SC: *Clinical Counseling*

Objectives

- To prepare students in the specific area of clinical counseling as a discipline seeking to understand counselor-client relationships in the context of training and rehabilitation of individuals with disorders in human communication.
- To train students into practical skills and competencies required for mastering basics of clinical counseling in their practice for identification and management of persons with communication disorders
- To sensitize pupils on the ethical aspects of clinical counseling when dealing with individuals or their families with communication disorders.
- To develop ability for integrating counseling based aspects in the field of research in communication disorders.

COURSE CONTENT

Unit 1

- Special Focus on Clinical Counseling: Need and Applications
- Counseling across Life Span: Child, Adolescent, Parenthood, Sibling, Grandparent/Elderly; Counseling across Relationships: Teacher, Family and Peer Group

Unit 2

- Portrait of Effective Counselors – Qualifications and Qualities – Micro and Macro Skills and Competencies – Do’s and Don’ts
- Tips for Improvement – Ethical Issues
- Outline of Conditions requiring Clinical Counseling: Organic Brain Syndromes-Functional Disorders-Psychotic and Neurotic Disorders-
- Disabilities & Impairments - Personality & Conduct Disorders-Special Populations: HIV/AIDS, School Drop Outs, Chronic or Terminally Ill

Unit 3

- Counseling Process: Stages in Clinical Counseling – Preparation and Pre-requisites – Middle Phase – Termination – Therapeutic Relationships
- Principles in Clinical Practice: Directive and Non-Directive Approaches
- Tools for Clinical Counseling – Major Events (Transference, Counter Transference & Resistance)

Unit 4

- Special Areas: Pre-marital, Marital, Vocational and Pre-vocational Clinical Counseling – Counseling the Differently Abled – Parent, Sibling and Grandparent Counseling – Crisis Counseling
- Gender Counseling – Human Rights, Enablement and Empowerment through Counseling – Counseling the Elderly
- Alternate/Holistic Forms of Counseling: Spiritual Counseling - Facilitation - Online Counseling - Contemplative Counseling – EMDR - Journal Therapy - Trauma Counseling - Emotional Freedom Technique - PSYCH-K Technique - Yoga & Meditation – Enneagram - Pastoral Counseling - Expressive Art Therapy - Gestalt Counseling - Massage Therapy – Scientific Basis, Cultural Constraints and Ethical Issues

References

Unit 1

1. Gelso, C.J. & Fretz, B.R. (1995). *Counseling Psychology*. New Delhi: A Prism Indian Edition.
2. Hansen, J.C., Stevic, R.R. & Warner, R.W. (1987). *Counseling*. Boston: Allyn & Bacon, Inc.,
3. Nelson-Jones, R. (1999). *Introduction to Counseling Skills*. London: Sage Publications.
4. Rao, N.S. (1981). *Counseling Psychology*. New Delhi: Tata McGraw Hill Pub. Co.
5. Palmer, S., Dainow, S. & Milner, P. (1996). *Counseling*. London, Sage Pubs.
6. Shertzer, B.S. & Stone, B. (1968). *Fundamentals of Counseling*. NY: Houghton Mifflin Co.

Unit 2

1. Street, E. (1994). *Counseling for Family Problems*. London, Sage Publications.
2. Blackham, G.J. (1977). Counseling – Theory, Process & Practice. Belmont: Wadsworth.
3. Palmer, S. (1999). *Introduction to Counseling and Psychotherapy*. London: Sage Publications.
4. Corey, G. (2011). Theory and practice of group counseling. 8th Edition. California: Brooks/Cole Publishing Company.
5. Corey, G. (2001a). *The art of integrative counseling.* Pacific Grove, CA: Brooks/Cole.

Unit 3

1. Nelson-Jones, R. (1982). *The Theory and Practice of Counseling Psychology*. London: Holt, Rinehart and Wilson.

2. Corey, G. (2008). Theory and practice of counseling and psychotherapy. California: Brooks/Cole.
3. Corey, G., Corey, C., and Corey, M.S. (2008). Grups: Process and Practice. California: Brooks/Cole.
4. Handbook of counseling psychology by Woolfe and Dryden, Sage, New Delhi, 1996.
5. Improving treatment compliance: counseling and systems strategies for substance abuse and dual disorders, by Dennis C.Daley.

Unit 4

1. Jacobs, Ed. E., Masson, R.L. & Harvill, R.L. (1998). *Group Counseling: Strategies & Skills*. Pacific grove, CA: Books / Cole Pub. Co.,
2. Madden, G.R. (1998). *Legal Issues in Social Work: Counseling and Mental Heath*. Thousand Oaks: Sage Publications.
3. Thomas, R.M. (1990). *Counseling and Life-span development*. New Delhi: SAGE Pubs. India Pvt. Ltd.
4. Tudor, K. (1998). *Group Counseling*. London: Sage Publications.
5. Group Counseling by George M.Gazda, Allyn & Bacon, Boston, 1989.
6. Intentional interviewing and counseling: facilitating client development in a multicultural society by Allen E.Ivey, Wadswoth Co. 1998.
7. Hart, JT (1983). Modern eclectic therapy a functional orientation to counseling and psychotherapy. New York: Plenum.

Paper Code: SLP 2.4 - SC: *Clinical Behavior analysis*

Objectives

- To prepare students in the specific area of clinical behavior analysis, therapy or change programs for affected individuals with disorders in human communication.
- To train students into practical skills and competencies required for mastering basics of clinical behavior analysis in their practice for identification and management of persons with communication disorders
- To sensitize pupils on the ethical aspects of clinical behavior analysis when dealing with individuals or their families with communication disorders.
- To develop ability for integrating clinical behavior analysis and counseling based aspects in the field of research in communication disorders.

COURSE CONTENT

Unit 1

- Learning: Meaning and Types – Behavioral Perspectives: History to current trends in Behavior Medicine – Behavioral Theories: Pavlov, Skinner and Watson – Concept of Behavior Therapy and Behavior Modification
- Behavioral Assessment: Meaning & Characteristics – Behavioral Perspective
- Recent Variations: Applied Behavior Analysis and Dialectical Behavioral Counseling – ABC Model

Unit 2

- Behavior Assessment Scales: Western and Indian-AAMD Adaptive Behavior Scale, PBCL, BASIC-MR, ACPC-DD, MDPS, etc
- Skills, Steps and Strategies: Procedure of Behavior Assessment & Management: Skill Training and Problem Behavior Remediation
- Shaping, Chaining, Prompting, Fading, Modeling, Contingency Contracting, Reward Training, Token Economy, Activity Scheduling, Systematic Desensitization, Flooding, Aversion Techniques, Self Management Techniques: Correspondence Training

Unit 3

- Behavior Change Techniques: Shaping, Chaining, Prompting, Compliance training, Stress Management/Relaxation Techniques: JPMR, Yoga – Habit Reversal Techniques – Paradoxical Intention – Negative Practice
- Operant Procedures and Techniques: Counter-Conditioning, Desensitization, Aversive Conditioning Procedures, Self-control Procedures and Cognitive Procedures, Time Out, Over-correction

Unit 4

- Biofeedback: EEG, EMG, GSR, EKG and Thermal – Polygraph
- Cognitive Behavior Techniques: Beck and Ellis – Reality Therapy and Transactional Techniques

References

Unit 1

1. Theoretical and experimental bases of the behavior therapy, by Feldman et al, Wiley, London.
2. Clinical biofeedback by Kenneth, R.G. williams and williams, Baltimore.
3. Behavior analysis and treatment by Ron Van Houten et al, Plenum press, NY, 1993.
4. Handbook of cognitive behavior by Keith S.Dobson, Hutchinson, London, 1988.
5. Annual review of behavior therapy: Theory and Practice by Franks & Wilson, 1997.
6. Behavior modification for people with mental handicap by Yule W.Carr J., Croon Helm Ltd., London, 1974.
7. International handbook of behavior modification and therapy by Alan S.Bellack et al, Plenum Press, NY, 1985.

Unit 2

1. Ramnero, J., & Törneke, N. (2008). *ABCs of human behavior: Behavioral principles for the practicing clinician.* Oakland, CA: New Harbinger & Reno, NV: Context Press.
2. Miltenberger, R.G., (2008). *Behavior modification: Principles and procedures (4th Ed.).* Pacific Grove, CA: Thomson/Wadsworth.
3. Woods, D. W., & Kanter, J. W. (Eds.). (2007). *Understanding behavior disorders: A contemporary behavioral perspective*. Reno, NV: Context Press.
4. Cooper, J.O., Heron, T.E. & Heward, W.L. (2007). *Applied Behavior Analysis (2nd Edition).* Prentice Hall.
5. Baum, W. M. (2004). *Understanding Behaviorism: Behavior, Culture, and Evolution (2nd edition).* Wiley-Blackwell.
6. Pierce, W.D. & Cheney, C.D. (2003). *Behavior Analysis and Learning, 3rd edition.*Lawrence Erlbaum.

Unit 3

1. Baldwin, J.D. & Baldwin, J.I. (2000). *Behavior Principles in Everyday Life (4th Edition).* Prentice Hall.
2. Dougher, M. J. (Ed.). (2009). *Clinical Behavior Analysis.* Reno, NV: Context Press.
3. Chiesa, M. (1994). *Radical Behaviorism: The philosophy and science*. Cambridge Center.
4. Leigland, S. (1992). *Radical behaviorism: Willard Day on psychology and philosophy*. Reno, NV: Context Press.
5. Catania, C. (1992). *Learning*. Prentice Hall.
6. Hayes, S. C. (Ed.). (1989/2004). *Rule Governed behavior: Cognition, contingencies, and instructional control.* New York: Plenum / reprinted in 2004 by Context Press.

7. Skinner, B.F. (1965). *Science and Human Behavior*. Free Press.

Unit 4

1. Culbert, Timothy P. "Biofeedback with Children and Adolescents." In *Innovative Psychotherapy Techniques in Child and Adolescent Therapy.* , edited by C. Schaefer. 2nd ed. New York: John Wiley and Sons, 1999.
2. Di Franco, Joyce T. "Biofeedback." In *Childbirth Education: Practice, Research and Theory,* edited by F. H. Nichols and S. S. Humenick. 2nd ed. Philadelphia: W. B. Saunders, 2000.
3. Schwartz, Mark S. and Associates. *Biofeedback: A Practitioner's Guide.* New York: Guilford, 1987.
4. Spencer, John W. and J. J. Jacobs. *Complementary/Alternative Medicine: An Evidence-Based Approach.* Baltimore: Mosby, 1999.
5. Stoyva, Johann M. and Thomas H. Budzynski. "Biofeedback Methods in the Treatment of Anxiety and Stress Disorders." In *Principles and Practice of Stress Management.* edited by P. M. Lehrer and R. L. Woolfolk. 2nd ed. New York: Guilford Press, 1993.

Paper Code: SLP 2.4 - SC: *Endoscopic evaluation of lesions of the larynx.*

Objectives

- Orientation towards observation of pre and post surgical conditions of the larynx.
- Orientation towards observation of live surgical procedure of the larynx (in the operation theater)

COURSE CONTENT

Unit – 1

- Anatomy of mouth, pharynx
- Anatomy of larynx, functions and mechanisms of laryngeal movements

Unit – 2

- Congenital abnormalities of mouth and pharynx
- Congenital abnormalities of the larynx
- Infections and inflammation of oral cavity and larynx

Unit – 3

- Trauma and stenosis of the larynx
- Neoplasms of oral cavity, pharynx and larynx
- Vocal cord of paralysis and its managements

Unit – 4

- Phonosurgical indications, types of laryngectomy – voice conservation procedures, artificial larynx and voice rehabilitation procedures

References

- Scott Brown"s Text Book of Otorhinolaryngology
- Dhingra Text Book of Otorhinolaryngology
- Log and Turners Text Book of Otorhinolaryngology
- Hazarika Text Book of Otorhinolaryngology
- Zakir Hussaine Text Book of Otorhinolaryngology
- Paparella Text Book of Otorhinolaryngology
- Gerald English Text Book of Otorhinolaryngology
- Introduction to Neurotology by Anirban Biswas
- Electro Nystamography by Milind V. Keethane
- Vertigo and Dysequilibrium by Peter C. Weber

Paper Code: SLP 2.5 - OE: ***Any paper offered by the UOM***

Paper Code: SLP 2.6 - HCC: ***Clinical Practicum I***

Paper Code: SLP 2.7 - SCC: ***Clinical Practicum II***

SEMESTER III

Paper Code: SLP 3.1 - HC: *Fluency and its Disorders*

Objectives

After studying this paper the student should be able to:

1. Get an understanding of the nature and types of fluency disorders
2. Will be able to diagnose and treat clients with various fluency disorders
3. Will be able to give seminars on various topics in fluency disorders
4. Will be able to carry out research in the area of fluency and its disorders

COURSE CONTENT

Unit 1:

- Definitions and dimensions of fluent speech and characteristics of stuttering
- Development and factors affecting of fluency
- Onset and development of stuttering
- NNF & Stuttering – early identification

Unit 2:

- Linguistic and Prosodic basis of fluency disorders
- Auditory and Neurological processing and Speech motor control in stuttering
- Articulatory, Laryngeal dynamics and timing and sequencing in fluency disorders
- Theories of stuttering: Organic/Physiological/Psychological theories /Genetic aspects of stuttering; Nature/nurture theories; Recent theories/models on stuttering

Unit 3:

- Assessment and Management of stuttering in children and adults; group therapy and counseling
- Recovery and Relapse of stuttering and related issues
- Management/Prevention of relapses
- Efficacy of stuttering therapies and EBP

Unit 4:

- Sub-grouping stuttering
- SAAND – causes, characteristics, assessment and management
- Cluttering – causes, characteristics, assessment and management
- Other fluency disorders

References

Unit 1

1. Bennet, E.M. (2006). Working with people who stutter-A life span approach. Pearson Edn Inc.
2. Bloodstein, O. (1993). Stuttering: The search for a cause and cure. Allyn & Bacon, MA.
3. Bloodstein. O. (1995). Handbook on stuttering. Singular publishing group Inc. , CA.
4. Conture (1990). Stuttering. Prentice Hall, New Jersey.
5. Conture E.G, (2001). Stuttering: Its nature, diagnosis and treatment. Allyn & Bacon, MA.
6. Culatta , R., & Goldberg, S.A. (1995). Stuttering therapy: An integrated approach to theory & practice. Allyn & Bacon, MA.
7. Curlee (1993). Stuttering and related disorders of fluency. Thieme Medical Publishers, NY.
8. Curlee & Perkins (Ed). (1985). Nature and treatment of stuttering. Taylor and Francis, London.
9. Dalton, hard castle, W.J. (1993). Disorders of fluency. Whurr Publishers, London
10. Fawcus, M. (1995). Stuttering: from theory to practice. Whurr publishers Ltd., England.
11. Gregory, H.H. (2003). Stuttering therapy: Rational and procedures. Pearson Education Inc.
12. Guitar, B. (2006). Stuttering: An integrated approach to its nature and treatment. Lippincott; William & Wilkins, MD.
13. Kalinowski, J.S & Saltukilaroghu, T. (2006). Stuttering. Plural publishing Inc. CA.
14. Lass, N. J. (Ed.) (1979). Speech and language advances in basic research and practice. Academic Press, New York, Vol.1-Vol.9.
15. Manning, W.H. (2010). Clinical decision making in fluency disorders. 3rd edn. Delmer language learning, NY.
16. Onslow, M. (1996) Behavioural management of stuttering. Singular publishing group. Inc.
17. Perkins, W.L. (1992). Stuttering prevented. Whurr Publishers, London.
18. Perkins, W.H (1996). Stuttering and science. Singular publishing group Inc. , CA.
19. Ratner, N.B., & Healey, E.C. (1999). Stuttering Research & practice: bridging the gap. Lawrence Erlbaum Associates, publishers, NJ.
20. Rustin, L.R., Botterill,W., & Kelman, E. (1996). Assessment and therapy for young disfluent children: family interaction. Whurr publishers, England.
21. Shapiro, D.A. (1999). Stuttering intervention: A collaborative journey to fluency freedom. PRO-ED, Inc. Texas.
22. Silverman, F.H. (1992). Stuttering and other fluency disorders. Prentice Hall, Inglewood Cliffs.
23. Starkweather , D. (1987). Fluency and stuttering. Prentice- Hall, New Jersey.
24. St. Louis (1986). Atypical stutter. Orlando, Academic Press.
25. Turnbull, J., & Stewart, T. (1996). Helping children cope with stammering. Sheldon press.
26. Wall, M. J., & Myers F. L. (1995). Clinical management of childhood stuttering. PRO-ED, Inc. Texas.

27. Ward, D. (2006). Stuttering and cluttering: Frameworks for understanding & treatment. Psychology Press, NY.
28. Wingate, M.E. (1976). Stuttering theory & treatment. Irvington Publishers Inc.
29. Wingate, M.E. (2002). Foundations of stuttering. Academic press, USA.
30. Zebrowski, P.M., & Kelly, E. M. (2002). Manual of stuttering intervention. Singular publishing group Canada.

Unit 2

1. Bennet, E.M. (2006). Working with people who stutter-A life span approach. Pearson Edn Inc.
2. Bloodstein, O. (1993). Stuttering: The search for a cause and cure. Allyn & Bacon, MA.
3. Bloodstein. O. (1995). Handbook on stuttering. Singular publishing group Inc. , CA.
4. Conture E.G, (2001). Stuttering: Its nature, diagnosis and treatment. Allyn & Bacon, MA.
5. Curlee (1993). Stuttering and related disorders of fluency. Thieme Medical Publishers, New York.
6. Curlee & Perkins (Ed). (1985). Nature and treatment of stuttering. Taylor and Francis, London.
7. Onslow, M. (1996) Behavioural management of stuttering. Singular publishing group. Inc.
8. Manning, W.H. (2010). Clinical decision making in fluency disorders. 3rd edn. Delmer language learning, NY.
9. Packman, A., & Attanasio, J.S. (2004). Theoretical issues in stuttering. Psychology press, NY.
10. Perkins, W.L. (1992). Stuttering prevented. Whurr Publishers, London.
11. Perkins, W.H (1996). Stuttering and science. Singular publishing group Inc. , CA.
12. Peters, F.M., & Hulstijin, W(Ed.). (1987). Speech motor dynamics in stuttering. Springer-Verlag, NewYork.
13. Peters, F.M., Hulstijin, W., & Starkweather, C.W. (1991). Speech motor control and stuttering. Elsevier science publishers, Netherlands,
14. Riley (1981). Stuttering prediction instrument for young children. Pro.Ed.Austin.
15. Riley (1986). Stuttering severity instrument for children and adults. Pro.Ed.Austin.
16. Rustin, L., Botterill,W., & Kelman, E. (1996). Assessment and therapy for young disfluent children. Whurr Publishers Ltd.
17. Rustin, L., Purser, H., & Rowley.D. (1987). Progress in the treatment of fluency disorders. Whurr publishers Ltd., England.
18. Shapiro, D.A. (1999). Stuttering intervention: A collaborative journey to fluency freedom. PRO-ED, Inc. Texas.
19. Silverman, F.H. (1992). Stuttering & other fluency disorders. Prentice Hall, Inglewood Cliffs.
20. Wall, M. J., & Myers F. L. (1995). Clinical management of childhood stuttering. PRO-ED, Inc. Texas.
21. Ward, D. (2006). Stuttering and cluttering: Frameworks for understanding & treatment. Psychology Press, NY.

Unit 3

1. Austin, L. and Others (Ed.) (1991). Progress in the treatment of fluency disorders. Whurr Publishers, London.
2. Bennet, E.M. (2006). Working with people who stutter-A life span approach. Pearson Edn Inc.
3. Bloom, S.C., & Cooperman, D.A. (1999). Synergistic stuttering therapy – A Holistic approach. Butterworth-Heinemann, MA.
4. Bothe, A.K. (2004) (Eds). Evidence based treatment of stuttering empirical bases and clinical applications. Lawrence Erlbaum Associates Inc. Publishers, NJ.
5. Conture E.G, (2001). Stuttering: Its nature, diagnosis and treatment. Allyn & Bacon, MA.
6. Corder, Akingham, R.J. (1998). Treatment efficiency for stuttering. Singular Publishing Group, San Diego.
7. Culatta , R., & Goldberg, S.A. (1995). Stuttering therapy: An integrated approach to theory & practice. Allyn & Bacon, MA.
8. Curlee (1993). Stuttering and related disorders of fluency. Thieme Medical Publishers, New York.
9. Curlee, R.F. (1999). Stuttering and related disorders of fluency, 2nd edn. Thieme, NY.
10. Curlee & Perkins (Ed). (1985). Nature and treatment of stuttering. Taylor and Francis, London.
11. Dalton, hard castle, W.J. (1993). Disorders of fluency. Whurr Publishers, London
12. Fawcus, M. (1995). Stuttering: from theory to practice. Whurr publishers Ltd., England.
13. Goldforb, R. (2006). Ethics- a case study from fluency. Plural publishing Inc. CA.
14. Gregory, H.H. (2003). Stuttering therapy: Rational and procedures. Pearson Education Inc.
15. Guitar, B. (2006). Stuttering An integrated approach to its nature and treatment. Lippincott; William & Wilkins MD.
16. Ham, R.E. (1990). Therapy of stuttering pre-school through adolescence. Prentice Hall, Englewood- cliffs
17. Hegde, M.N. (2007). Treatment protocols for stuttering. Plural publishing, CA.
18. Kalinowski, J.S & Saltukilaroghu, T. (2006). Stuttering. Plural publishing Inc. CA.
19. Manning, W.H. (2010). Clinical decision making in fluency disorders. 3rd edn. Delmer language learning, NY.
20. Onslow, M. (1996) Behavioural management of stuttering. Singular publishing group. Inc.
21. Onslow, M., & Packman, A. (1999). The Handbook of Early stuttering intervention. Singular publishing group, USA.
22. Packman, A., & Attanasio, J.S. (2004). Theoretical issues in stuttering. Psycho press, NY.
23. Perkins, W.L. (1992). Stuttering prevented. Whurr Publishers, London.
24. Perkins, W.H (1996). Stuttering and science. Singular publishing group Inc. , CA.
25. Ramig, P.R., & Dodge, D.M. (2005). The child and adolescent stuttering treatment and activity resource guide. Thomson Delmar Learning, Canada.
26. Ratner, N.B., & Healey, E.C. (1999). Stuttering Research & practice: bridging the gap. Lawrence Erlbaum Associates, publishers, NJ.

27. Ratner, N.B., & Tetnowski, J. (2006). Current issues in stuttering research and practice. Lawrence Erlbaum Associates publishers, NJ.
28. Rustin, L.R., Botterill,W., & Kelman, E. (1996). Assessment and therapy for young disfluent children: family interaction. Whurr publishers, England.
29. Rustin, L., Cook, F., & Spence, R. (1995). The management of stuttering in adolescence: A common skills approach. Whurr publishers Ltd., London.
30. Rustin, L, Cook, F, Botterill, W., Hughes,C., & Kelman, E. (2001) Stammering: a practical guide for teachers and other professionals. David Fulton Publishers.
31. Rustin, L., Purser, H., & Rowley.D. (1987). Progress in the treatment of fluency disorders. Whurr publishers Ltd., England.
32. Shapiro, D.A. (1999). Stuttering intervention: A collaborative journey to fluency freedom. PRO-ED, Inc. Texas.
33. Silverman, F.H. (1992). Stuttering and other fluency disorders. Prentice Hall, Inglewood Cliffs.
34. Starkweather, C.W., Gottwald, S.R., & Halford, M.M. (1990). Stuttering prevention: a clinical method. Prentice hall, NJ.
35. Turnbull, J., & Stewart, T. (1996). Helping children cope with stammering. Sheldon press.
36. Wall, M. J., & Myers F. L. (1995). Clinical management of childhood stuttering. PRO-ED, Inc. Texas.
37. Ward, D. (2006). Stuttering and cluttering: Frameworks for understanding & treatment. Psychology Press, NY.
38. Wells (1987). Stuttering treatment. Prentice-Hall, New Jersey.
39. Wingate, M.E. (1976). Stuttering theory & treatment. Irvington Publishers Inc.
40. Zebrowski, P.M., & Kelly, E. M. (2002). Manual of stuttering intervention. Singular publishing group Canada.

Unit 4

1. Bennet, E.M. (2006). Working with people who stutter-A life span approach. Pearson Edn Inc.
2. Curlee (1993). Stuttering and related disorders of fluency. Thieme Medical Publishers, New York.
3. Dalton, hard castle, W.J. (1993). Disorders of fluency. Whurr Publishers, London
4. Myers, (1992). Cluttering. Kibworth, Far Communication.
5. Myers, F.L., & St Louis, K.O (1996). Cluttering: A clinical perspective. Singular publishing group Inc. CA.
6. Ramig, P.R., & Dodge, D.M. (2005). The child and adolescent stuttering treatment and activity resource guide. Thomson Delmar Learning, Canada.
7. Shapiro, D.A. (1999). Stuttering intervention: A collaborative journey to fluency freedom. PRO-ED, Inc. Texas.
8. Silverman, F.H. (1992). Stuttering and other fluency disorders. Prentice Hall, Inglewood Cliffs.
9. Ward, D. (2006). Stuttering and cluttering: Frameworks for understanding & treatment. Psychology Press, NY.
10. Weiss (1964). Cluttering. Prentice Hall, New Jersey.

Paper Code: SLP 3.2 - HC: Speech and Language Processing

Objectives

After going through this course the student will be able to explain or understand

- Speech and language processing in human beings
- Methods used in research on speech and language processing
- Speech and language processing in clinical population

COURSE CONTENT

Unit 1: Speech Processing

(i) Introduction to speech perception

Basic issues in speech perception: Linearity, segmentation, lack of invariance, units of perceptual analysis – phoneme, syllable, word or beyond, perceptual constancy in speech – talker variability, variability in speaking rate, perceptual organization in speech – Gestalt principles of perceptual grouping, phonetic organization

(ii) Theoretical approaches to speech perception

Acoustic theory of speech perception, Motor theory of speech perception, Analysis by synthesis theory, Auditory theory of vowel perception, Quantal theory, Neurological theories, Pandemonium model, Direct-realistic approach, Machine based models - TRACE

(iii) Speech processing in the auditory system

Overview of the anatomy of the auditory system, analysis of speech in the auditory periphery, representation of speech in the central auditory system – place representation, intensity model, multiscale representation, categorical perception

Unit 2: Phonetic perception

- **Perception of vowels**: Cues of vowels – formants, f0, bandwidth, duration
- **Perception of stop consonants**: Cues of voicing, place and manner, voice onset time, transition duration, closure duration, burst duration, preceding vowel duration, F0, formants
- **Perception of nasals:** Formants, duration of nasal murmur
- **Perception of fricatives:** Formants, frication duration, voicing and place cues
- **Perception of other speech sounds**: Temporal and spectral cues

Unit 3: Spoken and visual word recognition

(i) Spoken word recognition

- **Methods**: Word under noise, filtered, truncated words, lexical decision, word spotting, phoneme triggered lexical decision, speeded repetition of words, continuous speech, tokens embedded in words and non-words, rhyme monitoring, word monitoring, cross-model priming.
- **Models and Issues:** The input to the lexicon - lexical access from spectra, constraints of temporal structure - Cohort model, interactive models of spoken word recognition - Logogen model, lexical and phonetic processing – phonetic categorization task, phoneme restoration studies, phoneme monitoring task, sentence and word processing, neighborhood activation model, Processing of ambiguous words.
- Stages and word recognition – Lexical concept, Lexical access, Phonological encoding, production.

(ii) Visual word recognition

- **Models of word recognition**: Dual route model, Lexical access models, Connectionist models, division of labour
- **Word and nonword naming**
- **Acquired dyslexias** – Surface, deep, and phonological, dysfluent and fluent types, lexical naming and nonlexical mechanism
- **Role of phonology in word recognition** – Evidences
- **The orthography depth hypothesis** – Shallow and deep orthography
- **Reading complex words**
- **Word recognition in context** - Modular Vs interactive models of context effects, priming effects, context effects relevance to Indian languages
- Visual word recognition – Issues relevance to Indian Languages

Unit 4: Sentence comprehension and production

- Goal of sentence comprehension research
- Various methods/techniques used for sentences comprehension research
- Historical perspectives
- Syntactic category ambiguity
- Attachment ambiguity: Models of attachment ambiguity resolution – Garden-path model, Referential theory, Constraint-based approaches
- Empirical studies – (1) structural preferences, eye fixation duration, regressive eye movements, (2) verb information, (3) thematic fit and argument assignment, (4) referential context – prepositional phrase attachment ambiguity, sentence clause/relative clause ambiguity, main clause/ relative clause ambiguity, (5) intonation and prosody.
- Discourse- definition, types, analysis. Discourse comprehension and production.
- Empty categories and Sentence and memory
- Context and anaphora - surface and deep anaphora
- Relevance to Indian languages

References

Unit 1 and 2

1. Borden, G. J. and Harris, K.S. (1980). Speech Sciences Primer: Physiology, Acoustics and Perception of Speech. Williams and Wilkins, London
2. Kuhl, P.K. (1982). Speech perception: An overview of current issues. In Lass, L.V. McReynolds, L.V., Northrn J. L., and Yoder D. E. (Eds.), Speech, language and hearing. Vol. I, Normal process, W. B. Sanders Company, Philadelphia.
3. Harrington, J., and Cassidy, S. (1999). Techniques in speech acoustics. London. Kluwer Academic Publisher
4. Lass, N. (Ed.) Speech and Language. Advances in basic research and practices vol. 10 (1984)
5. Syrdal, A. K., and Gopal, H.S., (1986). A perceptual model of vowel recognition based on representation of American English vowel, JASA, 79, 1086 – 1100.
6. Lass, N. (Ed.) Speech and Language. Advances in basic research and practices vol. 10 (1984)
7. Funded research projects reports in AIISH Library and information center

Unit 3

1. Sanders D. A (1977). Auditory perception of speech – An introduction to principles and problems. Prentice Hall, New Jersey.
2. Stevens, K. N & Blumstein, S. E (1981). The search for invariant acoustic correlates of phonetics features. In Eimas. P. and Miller, J.L. (Eds.), Perspectives on the study of speech. Lawrence Erlbaum Associates, New Jersey.
3. Summerfield, A. Q. (1983). Audio-visual speech perception, lip reading & artificial stimulation. In Lutman, M.E., Haggard M.P. (Eds.), Hearing sciences & hearing disorders. Academic press, London
4. Wathen-Dunn, W. (Ed.) (1967). Models for the perception of speech and visual form. Proceedings of a symposium, The MIT press, Cambridge.
5. Miller JL & Eimas PD (1995) Speech, Language, and Communication. Academic press, Inc
6. Gernsgacher, M. A. (1994). Handbook of psycholinguistics. Academic press, Inc

Unit 4

1. Levinson, P.J & Sloan, C. (1980). Auditory processing and language – clinical and research perspectives, Grune and Stratton, New York.
2. Miller JL & Eimas PD (1995) Speech, Language, and Communication. Academic press, Inc
3. Gernsgacher, M. A. (1994). Handbook of psycholinguistics. Academic press, Inc

Paper Code: SLP 3.3 - HC: *Aphasia*

Objectives

- To facilitate knowledge of various classification systems in aphasia
- To facilitate understanding of linguistic and non-linguistic impairments in aphasia
- To facilitate understanding of issues related to differential diagnosis and assessment in aphasia
- To facilitate understanding of issues related to management of aphasia

COURSE CONTENT

Unit 1

- Classification systems in Aphasia - Cortical v/s subcortical types - Traditional v/s linguistic approaches

Unit 2

- Linguistic impairments in Aphasias - Phonological deficits, semantic deficits, agrammatism & paragrammatism
- Non-linguistic impairments in aphasias
- Primary progressive aphasia (PPA),Aphasia in multilinguals, illiterates, left-handers & sign language users

Unit 3

- Investigative & assessment procedures in clinical aphasiology – (a) Language tests (b) Linguistic analysis-subjective/objective tests (c) Functional profiles.
- Differential diagnosis of aphasia with other language disorders viz. right hemisphere disorders (RHD), Schizophasia, traumatic brain injury (TBI) and dementia.

Unit 4

- Management of aphasia - Neurological, linguistic & communicative, physiotherapeutic, vocational & social aspects.

References:

Unit 1

- Caplan, D. (1990). Neurolinguistics and linguistics aphasiology – An introduction. Cambridge University press
- Code, C & Muller, D.J (1996). Forums in clinical aphasiology. Whurr Pub, London
- Hegde, M.N (1994). A course book on aphasia and other neurogenic language disorders, Singular publishing group, San Diego.
- Kertesz, A (1979). Aphasia and associated disorders – Taxonomy, localization and recovery. Grune and Stratton, NY
- Lahey, M. (1988). *Language disorders and language development*. New York: Macmillan
- Lesser, R (1989). Linguistic investigations of aphasia-studies in disorders of communications
- Schuell, H. (1974). Diagnosis and prognosis in aphasia. In L. F. sies (Ed.), *Aphasia, theory*
- *and therapy*. Baltimore: University park press.
- Tonkonogy, J. M. (1986). *Vascular Aphasia*. Cambridge, MA: MIT press.

Unit 2

- Dressler, W & Stark J. A (Ed.) (1998). Linguistic analysiss of aphasic language. Springer series in Neuropsychology, Springer-Verlag, NY
- Goodglass, H., & Kaplan, E. (1972). *The assessment of aphasia and related disorders*.
- Malvern, PA: Lea & Febiger.
- Goodglass, H. & Kaplan, E. (2001). *The Assessment of Aphasia and Related Disorders* (3rd Ed.). Baltimore: Lippincott, Williams and Wilkins.

Unit 3

- Dworkin, J.P & Hartman, D. E (1994). Cases in neurogenic communication disorders- A workbook. Singular publishing Group, Inc, San Diego
- Rose, Whurr and Wyke (ed) (1993). Aphasia. Whurr Pub., London
- Longerich, M. C., & Bordeaux, J. (1954). *Aphasia Therapeutics*. New York: Macmillan
- Ziegler, W & Deger, K (ed) (1998). Clinical phonetics and linguistics. Whurr Pub., London

Unit 4

- Chapey. R. Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders. Lippincott Williams & Wilkins; Fifth edition.
- Goodglass, H., & Kaplan, E. (1972). *The assessment of aphasia and related disorders*.
- Malvern, PA: Lea & Febiger
- Hegde, M.N (1994). A course book on aphasia and other neurogenic language disorders, Singular publishing group, San Diego.
- Lesser, R (1989). Linguistic investigations of aphasia-studies in disorders of communications
- Rose, Whurr and Wyke (ed) (1993). Aphasia. Whurr Pub., London.
- Screen, H. M., & Anderson, N. B. (1994). *Multicultural perspectives in communication disorders*. San Diego: Singular Publishing Group.

Paper Code: SLP 3.4 - HC: *Voice and its Disorders*

Objectives

1. To strengthen the fundamental knowledge base of normal vocal anatomy and physiology.
2. To identify and measure parameters of voice, to learn the methods/ protocols to assess voice and efficiently use tools to assess voice in normal, PVUs and persons with voice disorders
3. To learn specific strategies to facilitate the prevention of voice disorders.
4. To be able to differentially diagnose voice disorders with origins of structural, organic, neurological and psychogenic bases.
5. To be able to synthesize and apply appropriate treatment protocols that adequately meets the individual needs of a client.
6. To appreciate the value of collaboration in the management of voice disorders.

COURSE CONTENT

Unit 1

- Vocal fold physiology, neurophysiology of the larynx, vibratory modes of vocal folds
- Models of vocal fold vibration – one mass model, two mass model, multiple mass model
- Development of the vocal folds from infancy to geriatric population
- Effects of hormones on voice in various conditions (menstruation, pregnancy, endometriosis, hypothyroidism)

Unit 2

- Voice evaluation – invasive and non invasive methods
- Aerodynamic tests
- Issues related professional voice and its care

Unit 3

- Acoustical, perceptual and pathological aspects of voice in laryngectomee, organic voice disorders
- Assessment and management of transsexual voice disorders
- GERD – current issues, diagnostic and management aspects
- Muscle tension dysphonia – diagnosis, differential diagnosis and managements

Unit 4

- Classification of neurogenic voice disorders and management.
- Psychogenic voice disorders, models and management
- Rehabilitation – phonosurgery, medical management, recent voice therapy and evidence based practice

References

Unit 1

1. Baer, T. & Others. (1991). Laryngeal Functions in Phonation and Respiration. Singular, San Diego.
2. Barlow. Handbook of Clinical Speech Physiology.
3. Brodnitz (1971). Hormones and human Voice.
4. Davis, P. J., & Fletcher, N. H. (1996). Vocal Fold Physiology: Controlling Complexity and Chaos. Singular, San Diego.
5. Fink, B. R., & Demarest, R. J. (1978). Speech Sciences: Normal aspects of Voice. Common Health Fund Book, Cambridge.
6. Judson, L. S., & Weaver, A. T. (1942). Voice Science. FS Crafts, New York.
7. Kersner. Tests of Voice, Speech and Language.
8. Stevens, K. N., & Hirano, M. (1981). Vocal fold Physiology. University of Tokyo Press, New York.
9. Titze, I. R. (1993). Vocal Fold Physiology: Frontiers in Basic Science. Singular, San Diego.
10. Titze, I. R. (1994). Principles of Voice Production. Prentice Hall, New Jersey.

Unit 2

1. Anderson, V. A. (1967). Training the Speaking Voice.
2. Andrews, M. L. (1999). Manual of Voice Treatment. Singular, Africa
3. Baer, T. & Others. (1991). Laryngeal Functions in Phonation and Respiration. Singular, San Diego.
4. Baken, R. J. (1987). Clinical Measurements of Speech & Voice. Taylor & Francis, London.
5. Brodnitz (1971). Hormones and human Voice.
6. Brodnitz. Keep Your Voice Healthy.
7. Davis, D. G., & Jahn, A. F. (1998). Care of Professional Voice: A Management guide for Singers, Actors and Professional Voice Users.
8. Greene, M. C. L. (1990). Voice & its Disorders. Pitman, London.
9. Hixon & Others. Respiratory Function in Speech and Song.
10. Hixon, T. J., Hoit, J. D. Evaluation and Management of Speech Breathing and Disorders: Principles and Methods
11. Judson, L. S., & Weaver, A. T. (1942). Voice Science. FS Crafts, New York.
12. Karr, H. M. Developing the Speaking Voice.
13. Kersner. Tests of Voice, Speech and Language.
14. Martin & Darnley. The Teaching Voice.
15. Sataloff, R. T. (1997). Professional Voice. Singular, San Diego.
16. Stemple, Glaze & Gerdeman. Clinical Voice Pathology.

Unit 3

1. Falzone. P, Jones . M. A. & Karnell . M. P. (2001). Cleft palate speech. III edition, Mosby .Inc
2. Grunwell . P (1993). Analysing cleft palate speech. Whurr publishers ltd .London
3. Kahn. A. (2000). Craniofacial anomalies: A beginner's guide for speech language pathologists . Singular publishing group. California
4. Kummer .A.W. (2007). Cleft palate and craniofacial anomalies The effects on speech and resonace . Singular publishing. Thopson learning
5. McWilliams, B.J. (1990). Cleft palate speech. Philadelphia: B.C. Decker
6. Moller . T. k & Starr (1992) Cleft palate: Interdisciplinary issues and management. Pro –ed Austin
7. Ramp, D. L., Pannabacker, M., & Kinnebrew (1984). Velopharyngeal incompetency : A practical guide for evaluation and management Pro –ed , Austin
8. Shprintzen . R.J. & Bardach J (1995). Cleft palate speech management: A multidisciplinary approach. Mosby . Inc
9. Spristersbach, D. (1968). Cleft palate and communication. New York: Academic Press.
10. Stengelhofen . J. (1993) . Cleft palate : The nature and remediation of communication problem . Whurr publishers ltd .London

Unit 4

1. Berkowitz. S. (2001). Cleft lip and palate: Perspectives in management. Vol 1. Singular publishing group. Inc
2. Bzoch, K. (Ed) (1989). Communicative disorders related to cleft lip and palate. Boston: Little Brown Co
3. Falzone. P , Jones . M. A. & Karnell . M. P. (2001). Cleft palate speech. III edition,, Mosby .Inc
4. Golding. K. J & Kushner (2004) Therapy techniques for cleft palate speech and related disorders , Singular Thompsonlearning
5. Grabb, W.C. & Others (1971). Cleft lip and palate surgical, dental and speech aspects. Boston: Little Brown Co
6. Kummer .A.W. (2007) . Cleft palate and craniofacial anomalies The effects on speech and resonance . Singular publishing. Thopson learning
7. McWilliams, B.J. (1990). Cleft palate speech. Philadelphia: B.C. Decker
8. Morley (1970). 7th Ed. Cleft palate and speech. Edinburgh, Livingstone
9. Peterson , Falzone , Cardomone , Karnell (2006) The clinician guide to treating cleft palate speech . Mosby. Elsevier
10. Skelly (1974). Glossectomee: Speech rehabilitation. Springfield: Charles C Thomas Shprintzen. R. J. & Bardach. J. (1995). Cleft palate speech management: A multidisciplinary approach. Mosby. Inc
11. Watson. A. C. H., Sell. D. A & Grunwell. P. (2001). Management of cleft lip and palate. Whurr publishers ltd .London

Paper Code: SLP 3.5 - HC: Motor Speech Disorders

Objectives:

- To facilitate knowledge of neuroanatomical substrates of dysarthria and swallowing disorders
- To facilitate understanding of models relevant to speech motor control in normals, aging population, developmental and acquired dysarthira and apraxia.
- To facilitate understanding of issues related to assessment and management of dysarthrias
- To facilitate understanding of issues related to assessment and management of apraxia of speech and dysphagia.

COURSE CONTENT

Unit 1

Neuroanatomical substrates of speech motor control:

- Cortical control – Sensori and motor attributes
- Subcortical control – Thalamus, Basal Ganglia, Brain stem, Cerebellum and others
- Cranial and peripheral nerves, distribution to oral structures, projection fibres in speech motor control
- Overview of neuromuscular substrates of speech production mechanism
- Physiological norms of speech production mechanism
- The localization of motor speech control in frontal lobe for speech (including the animal studies)
- The role of sensory cortex (parietal) in motor speech control
- Role of feedback and feedforward loops/tracts in the motor speech control (especially from and between the structures of frontal lobe, thalamic nuclei, basal ganglia, cerebellum and brain stem)
- Role of mechanoreceptors and their distribution in the speech mechanism

Neurophysiological substrates of speech motor control

- The relevance of neurophysiological background in the understanding of motor speech disorders

Neuroanatomical substrates of swallowing:

- Broad outline on the anatomical and neuro-anatomical control of feeding mechanism including the cranial nerves
- The localization of motor control for feeding in cortical and subcortical structures
- The role of sensory cortex (parietal) in feeding
- Mechanoreceptors and their distribution in the feeding mechanism

Neurophysiological substrates of swallowing:

- The normal physiology of feeding (stages etc)

Unit 2

- *Acquisition of speech as described in the auditory verbal models.*
    - Relevance of sensory input to motor control
    - Feedback and feedforward loops
    - Model suggested by Netsell to describe the development of speech motor control
    - Neural substrates in the maturation of speech motor control
    - Concept of "Speech motor age" – description, relevance, advantages and disadvantages

- *Concepts and models of speech motor control*
    - Concepts of speech motor control as addressed in the studies. Example, "Motor equivalence", "Spatio temporal index" "Variability" etc.
    - Models of speech motor control – their relevance in understanding dysarthria, apraxia and stuttering. focus on stages of speech production including speech initiation, planning, programming, transmission and execution as explained in each of these models
        - Closed loop models
        - Open loop models
        - Associative chain model
        - Serial order model
        - Roy's hierarchical model
        - Schema theory
        - Task dynamic model
        - Van Der Merwe's model
        - Mac Kay's model
        - Adaptive model
        - Gracco's model
        - Klapp's model

- *Studies on speech motor control*
    - Studies on speech motor control in normal adults- Review and discussion of journal articles (past 10 years).
    - Studies on speech motor control in disordered population Review and discussion of journal articles (past 10 years).

Unit 3

- *Types, characteristics – Developmental and Acquired dysarthrias*
  - Types in Developmental and Acquired dysarthria, classification etc
  - Description of general and exclusive characteristics in Developmental and Acquired dysarthrias
  - Description of speech characteristics in Developmental and Acquired dysarthrias
  - Concepts: isolated dysarthria and minimal motor dysfunction
  - Syndromic conditions with motor speech disorders

- *Assessment – Developmental and Acquired dysarthrias*
  - Components of assessment Eg general, oral, linguistic etc
  - Detailed assessment of the speech systems for both developmental and acquired dysarthria
    - ➢ Subjective methods (general)
    - ➢ Objective assessment methods

- *Management of Developmental and Acquired dysarthrias*
  - General approaches to the treatment of developmental dysarthria –
    - ➢ Mysaks's prophylactic, palliative and etiological
    - ➢ Mc.Donald's approach for CP
    - ➢ Hardy's approach for CP Etc
  - Principles of speech treatment
  - Traditional approaches in speech correction (eg, tone, posture, strength etc) in developmental and acquired dysarthria
  - Programmed subjective approaches in treatment of Dysarthria Eg Dworkin
    - ➢ The treatment hierarchy in correction of speech system errors in dysarthria
  - Need for other supportive therapies along with speech therapy

- *Prosthetic, medical and surgical intervention in dysarthria*
  - Medical, surgical and prosthetic approaches in developmental and acquired dysarthria
  - Specific treatment approaches in medicine for motor speech disorders
  - Specific treatment approaches in surgery for motor speech disorders

- *Influence of aging on speech motor control in normals and disordered population*
  - The morphological and neurological reasons for aging in normals and disordered population.
  - The confounding factors/influences of age related changes in the adults with speech motor disorders – general information, studies with respect to acoustic analysis etc

- *Facilitatory approaches in the rehabilitation of dysarthria*
  - The status of facilitatory approaches in the treatment of motor speech disorders
  - The "for and against" schools of thought for facilitatory approaches – supportive evidences in the form of theories, studies, hypothesis etc

Unit 4

- *Developmental and acquired apraxia of speech – types and characteristics including neural substrates*
  - Definition
  - Types in Apraxia/classification
  - Characteristics of DAS and AOS
  - Differences and similarities in DAS and AOS

- *Assessment of apraxia of speech and non speech apraxia in children and adults*

- *Management of apraxia of speech and non speech apraxia in children and adults*

- *Dysphagia -Types of disorders seen in children and adults*
  - Non neurogenic and neurogenic causes for disorders of swallowing and feeding in children and adults
  - Disorders related to various stages of swallowing in children – congenital, acquired, post surgical etc
  - Disorders related to various stages of swallowing in adults – structural, neurogenic, traumatic, degenerative etc

- *Assessment of Dysphagia and feeding problems in children and adults*
  - Assessment techniques: Subjective and Objective as applicable to children and adults

- *Management of dysphagia in children and adults by Speech language pathologists*
  - Different aspects of management of dysphagia (dysphagia therapy - behavioral)
  - Indirect and direct therapy techniques in management
  - Specific modifications required for children and adults

- *Alternate approaches in the management of dysphagia in children and adults –*
  - Different aspects of management of dysphagia (surgical, medical and others)

References:

Unit 1

1. Arvedson, J. C. & Brodsky, L. (2002). *Pediatric swallowing and feeding: assessment and management (2nd Edition).* Canada : Cengage Learning.
2. Bickerstaff, E. R. & Spillane, J.A. (1996). *Bickerstaff's neurological examination in clinical practice.* Massuchesets. Wiley-Blackwell.
3. Brookshire, R. H. (2007). *Introduction to neurogenic communication disorders.* University of Virginia . Mosby.
4. Carrau, R. L. & Murray, T. (1999). *Comprehensive Management of Swallowing Disorders*. Singular Publishing Group. San Diego: London.
5. Darby. J. K. (1989). *Speech and language evaluation in neurology: childhood disorders.* USA .Allyn and Bacon..
6. Ferrand, C.T., & Bloom, R.L. (1997). *Introduction to organic and neurogenic disorders of communication: current scope of practice*. US. Allyn and Bacon.
7. Goetz, C. G. (2007). *Textbook of clinical neurology (3rd edition).* Elsevier Health Sciences.
8. Grillner, P., Lindblom, J., & Persson, A. (1982). *Speech Motor Control.* New York: Pergamon.
9. Hall, K.D. (2001). *Pediatric dysphagia: Resource guide.* Clifton Park, NY:Delmar Learning.
10. Hammond, G. R. (1990). *Cerebral control of speech and limb movements*. Elsevier.
11. Joseph, R. (1996). *Neuropsychiatry, Neuropsychology, Clinical Neuroscience (2nd Edition*). Williams & Wilkins. Baltimore.
12. Keller, E. & Gopnik, M. (1987). *Motor and Sensory processes of language.* Lawrence Erlbaum Associates. New Jersy.
13. Kingsley, R. E. (2000). *Concise text of neuroscience (2nd edition).* Lippincott Williams & Wilkins. University of Michigan.
14. Kirschner, H. S. (1995). *Handbook of neurological speech and language disorders*. Vol.33. M. Dekker.
15. Kuehn, D. P., Lemme, M. L., & Baumgartner, J. M. (1989). *Neural bases of speech, hearing, and language*. Little Brown. University of Michigan.
16. Love, R. J., & Webb, W.G. (1992). *Neurology for the speech-language pathologist (2nd Edition).* Butterworth-Heinemann. University of Michigan.
17. Millner, A. J. (1999). *Neuroscientific principles of swallowing and dysphagia*. Singular Publishing group. San Diego.
18. Perkins, W.H. & Kent, R.D. (1986). *Textbook of functional anatomy of speech, language and hearing.* Taylor & Francis.

19. Perlman, A., & Schulze-Delrieu, K. (1997). *Deglutition and its disorders: anatomy, physiology, clinical diagnosis, and management*. Cengage Learning.
20. Seikel, J. A., King, D.W., & Drumright, D.G. (2005) *Anatomy & Physiology for Speech, Language and Hearing (3rd edition)*. Thomas Delmar Learning.USA.
21. Weiner, W. J., & Goetz, C.G. (2004). *Neurology for the non-neurologist (5th Edition)* Lippincott Williams & Wilkins.

Unit 2

1. Guenther F. H., & Perkell J.S. (2004). *A neural model of speech production and its application to studies of the role of auditory feedback in speech.* UK.Oxford university press.
2. Kuehn, D. P., Lemme, M. L., & Baumgartner, J. M. (1989). *Neural bases of speech, hearing, and language*. Little Brown. University of Michigan.
3. Perkell, J.S., & Nelson, W.L. Sensorimotor control of speech production: Models and Data. Massachusetts Institute of Technology. Cambridge.
4. Peters, H. F. M., & Hulstijn, W. (1987). *Speech motor dynamics in stuttering*. Springer-Verlag.

Unit 3

1. Barlow, S.M., & Andreatta, R.D. (1999). *Handbook of clinical physiology.* Vol 1. University of Michigan.Singular Publishing Group,
2. Beasley. D. S., & Davis. G. A. (1981). *Aging, Communication processes and disorders*. New York: Grunne & stratton.
3. Berry, W. R. (1983). *Clinical dysarthria*. University of Michigan. College-Hill Press.
4. Brookshire, R. H. (2007). *Introduction to neurogenic communication disorders.* University of Virginia . Mosby.
5. Cannito, M. P., Yorkston, K. M., & Beukelman, D. R. (1998). *Neuromotor speech disorders: nature, assessment, and management*. Virginia. Paul H. Brookes.
6. Caruso. A. C., & Strand, E. A. (1999). *Clinical management of motor speech disorders in children*. New York. Thieme.
7. Crary. M. A. (1993). *Developmental motor speech disorders*. San Diego. CA; Singular Publishing Group.
8. Darby, J. K. (1981). *Speech evaluation in medicine*. University of Michigan .Grune&Stratton.
9. Darby, J. K. (1981). *Speech evaluation in psychiatry*. University of Michigan. Grune & Stratton.
10. Darby, J. K. (1985). *Speech and language evaluation in neurology- adult disorders.* University of Michigan. Grune & Stratton.
11. Darby. J. K. (1989). *Speech and language evaluation in neurology: childhood disorders.* USA .Allyn and Bacon..

12. Darley, F. L., Aronson, A. E., and Brown, J. R. (1975). *Motor speech disorders*. Philadelphia: W.B. Saunders.
13. Dodd, B. (2005). *Differential diagnosis and treatment of children with speech disorders*. London. Whurr Publishers.
14. Duffy, J. R. (1995). Motor speech disorders - differential diagnosis and management. St. Louise. Mosby.
15. Duffy, J. R. (2005). *Motor speech disorders: substrates, differential diagnosis, and management (2nd Edition* . Elsevier Mosby. University of Michigan.
16. Dworkin, P. J. (1991). *Motor speech disorders: A treatment guide.* St.Louis: Mosby.
17. Dworkin, J. P., & Hartman, D. E. (1994). *Cases in neurogenic communication disorders: a workbook*. University of Michigan. Singular Publishing Group.
18. Edward, M. (1984). *Disorders of articulation: aspects of dysarthria and verbal dyspraxia*. Vol.7. University of Michigan. Springer-Verlag.
19. Ferrand, C.T., & Bloom, R.L. (1997). *Introduction to organic and neurogenic disorders of communication: current scope of practice*. US. Allyn and Bacon.
20. Freed, D. B. (2000). *Motor speech disorders: diagnosis and treatment*. Vol.1. Canada. Cengage Learning.
21. Gillis,R. J., McHenry, M., & Pierce, J. N. (1996). *Traumatic brain injury rehabilitation for speech-language pathologists*. University of Michigan. Butterworth-Heinemann..
22. Hardy, J. C. (1983). *Cerebral Palsy.* Englewood Cliffs. NewJersy. Prentice Hall.
23. Huckabee, M. L., & Pelletier, C.A. (1999). *Management of adult neurogenic dysphagia*. Singular Publishing group, San Diego.
24. Johnson, A. F. & Jacobson, B.H. (2007). *Medical speech-language pathology: a practitioner's guide.* Thieme.
25. Kent, R. D. (1994). *Reference manual for communication sciences and disorders: speech and language.* Austin, TX: Pro-ed.
26. Langley, M. B., & Lombardino, L.J. (1991). *Neurodevelopmental strategies for managing communication disorders in children with severe motor dysfunction*. Pro-Ed. University of Michigan.
27. Lass, N.J. (1981). *Speech and language: advances in basic research and practice*. Vol. 5. Academic Press. University of Michigan.
28. Lebrun, Y. (1997). *From the brain to the mouth:acquired dysarthria and dysfluency in adults.* Kluwer Academic publishers, Netherlands, 1997.
29. Love. R. J. (2000). *Childhood motor speech disability. 2nd edn.* USA: Allyn and Bacon.
30. Massen, B., Kent, R., & Peters, H. (2007). *Speech Motor Control: In Normal and Disordered Speech.* Oxford University Press.
31. Mc.Neil, M. R., Rosenbek, J.C., & Aranson, A. E. (1984). *The dysarthrias: physiology, acoustics, perception and management.* College-Hill Press, 1984
32. McNeil, M. R. (2008). *Clinical management of sensorimotor speech disorders (2nd edition).* Thieme.

33. Miller, J. L., & Eimas, P.D. (1995). *Speech, language, and communication*. Vol.11. Academic Press. University of Michigan.
34. Murdoch, B. E. (2010). *Acquired speech and language disorders* (2nd Edition). John Wiley and Sons.
35. Netsell, R. (1986). *A neurobiological view of speech production and the dysarthrias.* College-Hill Press. University of Michigan.
36. Vogel, D. & Carter, J.E. (1995). *The effects of drugs on communication disorders*.Singular Publishing Group. University of Michigan.

Unit 4

1. Arvedson, J. C. & Brodsky, L. (2002). *Pediatric swallowing and feeding: assessment and management (2nd Edition).* Canada : Cengage Learning.
2. Carrau, R. L. & Murray, T. (1999). *Comprehensive Management of Swallowing Disorders*. Singular Publishing Group. San Diego: London.
3. Gallender, D: *Eating Hadicaps*: Illustrated Techniques for feeding disorders. Springfield II: US. Charles C. Thomas. 1979.
4. Hall, K.D. (2001). *Pediatric dysphagia: Resource guide.* Clifton Park, NY:Delmar Learning.
5. Longemann, J. A. (1983). *Evaluation and treatment of swallowing disorders (1st edn).*Austin, TX, Pro-Ed.
6. McNeil, M. R. (2008). *Clinical management of sensorimotor speech disorders (2nd edition).* Thieme.
7. Murdoch, B. E. (2010). *Acquired speech and language disorders* (2nd Edition). John Wiley and Sons.
8. Murray, T., & Carrau, R.L. (2006). *Clinical manual of swallowing disorders*. Plural Publishing. University of Michigan.
9. Portwood, M. (1999). *Developmental dyspraxia – identification and intervention: A manual for parents and Professionals (2nd ed)* .London. David Fulton Publishers.
10. Portwood, M. (2000). *Understanding developmental dyspraxia.* London. Fulton Publishers.
11. Ripley.K. (2001). *Inclusion for children with dyspraxia: A hand book for teachers.* London. David Fulton Publishers ltd.
12. Rosenthal, S. R., Sheppard, J. J. & Lotze, M. (1995). *Dysphagia and the child with developmental disabilities: medical, clinical, and family interventions*. Singular Publishers. University of Michigan.
13. Rothi, L. J., Rothi, L. J. G., Heilman, K. M. (1997). *Apraxia: The Neuropsychology of Action.* United Kingdom. Taylor & Francis ltd.
14. Rubin, J.S., Bronitowski, M. & Kelly, J.H. (2000). *The swallowing manual*. Singular Publishing group. University of.*Michigan*.

15. Scherzer, A. L. & Tcharnuter, I. (1990). *Early diagnosis and therapy in cerebral palsy: a primer on infant developmental problems*. M. Dekker.University of Michigan.
16. Swain, P. I. (2006). *New Developments in Eating Disorders Research.* Nova Publishers.
17. Tuchman, D. N. & Walter, R.S. (1994). *Disorders of feeding and swallowing in infants and children: pathophysiology, diagnosis, and treatment*. Singular Publishers.University of Michigan.
18. Velleman, S. L. (2003). *Childhood apraxia of speech- Resource guide (*3rd Edition). Cengage Learning.
19. Wertz, Lapointe and Rosenbek (1999). *Apraxia of speech in adults*: *Disorders and its management*. *NCVS Status report, 1999, pp 173*-199
20. Yorkston, K. M., Miller, R. M., & Strand, E. (1995). *Management of speech and swallowing in degenerative diseases*. Austin, Texas. Pro-ed.
21. Hall, P. K., Jordon, L. S., & Robin, D.A. *Developmental apraxia of speech: theory and clinical practice*. Pro-ed.

Paper Code: SLP 3.6 - HCC: ***Clinical Practicum I***

Paper Code: SLP 3.7 - HC: Dissertation

SEMESTER IV

Paper Code: SLP 4.1- HC: *Adult language disorders*

Objectives

- To facilitate knowledge of various non-aphasic language disorders in adults
- To facilitate understanding of cognitive linguistic communicative impairments and differential diagnosis in non-aphasic language disorders in adults
- To facilitate understanding of issues related to assessment of non-aphasic language disorders in adults
- To facilitate understanding of issues related to management of non-aphasic language disorders in adults

Unit 1

- Non-aphasic language disorders in adults-causes, types, characteristics & classification of (a) Traumatic Brain Injury (b) Dementia (c) Acquired Dyslexias (d) Alcohol induced language disorders (e) Metabolic disorders of language

Unit 2

- Cognitive-linguistic–communicative impairments in non-aphasic language disorders in adults.
- Differential diagnosis of non-aphasic language disorders in adults on the basis of neurodiagnostic, cognitive, linguistic, communicative speech - motor and behavior deficits.

Unit 3

- Assessment of non-aphasic language disorders in adults-procedures for neurological, cognitive - linguistic, communicative, speech motor and behavioral measurements.

Unit 4

- Management of non-aphasic language disorders in adults-Interdisciplinary approach – (a) Pharmaco-therapy (b) Behavior therapy (c) Physiotherapy (d) Cognitive and communicative rehabilitation procedures.

References

Unit 1

1. La Pointe, L (1990). Aphasia and related neurogenic language disorders. Current therapy of communication disorders. Series Editor William H Perkins, Thieme Medical Pub. NY
2. Morris, J.C (ed) (1994). Handbook of Dementic illnesses. Marcel Dekker Inc., NY.
3. Kirshner, H.S. (ed) (1995). Handbook of neurological speech and language disorders. Neurological diseases and therapy series Marcel Dekker, Inc, NY.
4. Gillis, et. al., (1996). Traumatic Brain Injury- rehabilitation for Speech-Language pathologists. Butterworth-Heinemann
5. Green et. al. (1997). Neurogenic communication disorders series. Singular pub co., London.

Unit 2

1. Morris, J.C (ed) (1994). Handbook of Dementic illnesses. Marcel Dekker Inc., NY.
2. Kirshner, H.S. (ed) (1995). Handbook of neurological speech and language disorders. Neurological diseases and therapy series Marcel Dekker, Inc, NY.
3. Gillis, et. al., (1996). Traumatic Brain Injury- rehabilitation for Speech-Language pathologists. Butterworth-Heinemann
4. Green et. al. (1997). Neurogenic communication disorders series. Singular pub co., London.

Unit 3

1. Morris, J.C (ed) (1994). Handbook of Dementic illnesses. Marcel Dekker Inc., NY.
2. Kirshner, H.S. (ed) (1995). Handbook of neurological speech and language disorders. Neurological diseases and therapy series Marcel Dekker, Inc, NY.
3. Gillis, et. al., (1996). Traumatic Brain Injury- rehabilitation for Speech-Language pathologists. Butterworth-Heinemann
4. Green et. al. (1997). Neurogenic communication disorders series. Singular pub co., London.

Unit 4

1. Morris, J.C (ed) (1994). Handbook of Dementic illnesses. Marcel Dekker Inc., NY.
2. Kirshner, H.S. (ed) (1995). Handbook of neurological speech and language disorders. Neurological diseases and therapy series Marcel Dekker, Inc, NY.
3. Gillis, et. al., (1996). Traumatic Brain Injury- rehabilitation for Speech-Language pathologists. Butterworth-Heinemann.
4. Green et. al. (1997). Neurogenic communication disorders series. Singular pub co., London.
5. Johns, D.F. (ed) (1978). Clinical management of neurogenic communicative disorders. Little, Brown and Company, Boston.

Paper Code: SLP 4.2 - HC: *Augmentative and Alternative Communication*

Objectives

- To facilitate understanding of various means and methods of AAC
- To facilitate understanding of assessment and management techniques in AAC
- To facilitate understanding of issues to language and related factors
- To facilitate understanding thee nature, future and scope of AAC with respect to the Indian context

COURSE CONTENT

Unit 1

- Historical background for AAC
- Overview of components of AAC
- Definition & scope
- Models of AAC
- Classification and taxonomy of AAC
- Team in AAC and their role
- Population who require AAC intervention (who, and when of AAC)

- Aided symbols in AAC: Detailed description of aided symbols in AAC
- Unaided symbols in AAC: Detailed description of unaided symbols in AAC
    - Sign language: structures in detail- syntax, morphology
    - Sign language: structures in detail - phonology, semantics and pragmatics
- Technology in AAC:
    - Low tech aids – types and accessories including the communication boards and factors related to these
    - High tech aids – types and accessories

Unit 2

- **Assessment of candidates for Aided AAC systems:**
    - Assessment models
    - Standard assessment scales.
    - Assessment of candidates for Aided AAC systems
    - Assessment of competencies in physical modality/motor control
    - Seating, special furniture and others
    - Cognitive skills
    - Visual and other sensory skills
    - Selection of symbols and vocabulary

Unit 3

- ***AAC intervention: Principles and procedures***
    - Intervention and teaching strategies
    - Teaching situation
    - Choosing first signs, subsequent goal selection, planning etc.
    - Intervention strategies for children with specific developmental disabilities such as Mental retardation, Cerebral palsy, PDD, etc.
    - Intervention strategies for specific acquired disabilities (degenerative and non degenerative)
- Strengthening and furthering communication skills in AAC users – Supporting AAC candidates in various situations
    - home,
    - school
    - vocation &
    - other social situations etc.
- Caregiver training and working at homes, training family members

Unit 4

- Language and related issues in AAC intervention: aided and unaided systems:
    - Language comprehension
    - Language competence
    - Inner language
    - Interaction and language use
    - Biological and neurological processes in language
- AAC and natural speech
- AAC and pragmatics
- AAC in Indian Context
- Future of AAC and scope for research
- Outcome measures in AAC
- Evidence based practice in AAC

References

Unit 1

1. Beukelman, D. R., Mirenda, P., & Paul, H. (1998). *Augmentative and Alternative communication – Management of severe communication disorders in children and adults.* Baltimore: Brookes Publishing Co.
2. Bornstein, H., Saulnier, K.L (1987). *The Signed English schoolbook*. Washington, DC: Kendall Green Publication.
3. Enderby, P. (1987). *Assistive communication aids – for the speech impaired*. UK: Churchill Livingstone.
4. Friedman, L. A. (1997). On *the other hand – new perspectives on American sign language.* New York: Academic Press Inc.
5. Frost, L.A., & Bondy, A.S.(1994). PECS, *The Picture Exchange Communication System: Training manual.* Cherry Hill, NJ: Pyramid Educational Consultants, Inc.
6. Glennan, S., & Decoste, D. (1997). *The Handbook of Augmentative and Alternative Communication.* San Diego, CA: Singular Publishing Group.
7. King, T.W. (1999). *Assistive Technology: Essential human factors*. Boston, MA: Allyn & Bacon.
8. Kylel, J. G., & Well, B. (1985). *Sign language – The study of deaf people and their language*. Cambridge: Cambridge university press.
9. Lloyd, L. L., Fuller, D.R., & Arvidson, H. H.(1997). *Augmentative and Alternative communication – A handbook of principles and practices.*, Massachusetts: Allyn and Bacon.
10. Loncke, F. T., Clibbens, J., Arvidson, H. H., & Lloyd, L. L. (1999). *Augmentative and Alternative communication- new directions in research and practice.* Whurr publishers, London.
11. Mc. Donald, E. T. (1980). *Teaching and using Blissymbols.* Canada: The Blissymbols communication institute.
12. Pain, H., McLellan, L., & Gore, S.(2003). Choosing assistive devices – A guide for users and professionals. London : Jessica Kingsley Publishers.
13. Quist, R.N., Lloyd, L.L, & Arvidson, H.H. (2010). *Assistive Technology: Principle and Application for communication disorders and special education*. Baltimore, MD: Paul.H.Brookes Publishing Company.
14. Rowland, C. & Schweigert, P. (1990). *Tangible symbol system – symbolic communication for individuals with multisensory impairment.* Arizona: Communication skill builder.
15. Silverman, F. H. (1980). *Communication for the speechless – An introduction to nonvocal communication systems for the severely communicatively handicapped.* Englewood Cliffs, N. J:Prentice-Hall Inc.
16. Silverman, H., Mc Naughton, S., & Kates, B. (1978). *Handbook of Blissymbols*. Canada: The Blissymbols communication institute.
17. Tennant, R.A., & Brown, M.G. (1998). *The American Sign Language Handshape dictionary*. San Diego, CA: Sign Enhancers, Inc.

18. Tetzchner, S. V., & Jensen, M. H. (1996). *Augmentative and Alternative communication: European Perspectives*. London:Whurr Publishers Ltd.
19. Tetzchner, S. V., & Martinsen, H.(1992). *Introduction to sign teaching and the use of communication aids*. London:Whurr Publishers Ltd.
20. Vanderheiden, G. C., & Grilley, K . (1975). *Non-vocal communication techniques and aids for the severely physically handicapped.* Baltimore University: Park press.
21. Vasishta, M., Woodward, J., & DeSantu, S. (1980). An introduction to Indian sign language New Delhi: All India Federation of the deaf.
22. Webster, J.GCook,,. A. M, Tompkins, W. J. &. Vanderheiden, G. C(1985). *Electronic devices for rehabilitation.* London: Chapman and Hall ltd.
23. Wilbur, R. B. (1987). American sign language. San Diego: College Hill press.

Unit 2

1. Alant, E., & Lloyd. L. L. (2005). *Augmentative and Alternative Communication and Severe Disabilities – Beyond Poverty.* London:Whurr Publishers Ltd.
2. Baumgart, D., Johnson, J., & Helmtetter, E.(1990). Augmentative and Alternative Communication system for persons with moderate and severe disabilities. Baltimore, MD: Paul.H.Brookes Publishing Company.
3. Beukelman, D. R., Mirenda, P., & Paul, H. (1998). *Augmentative and Alternative communication – Management of severe communication disorders in children and adults.* Baltimore: Brookes Publishing Co.
4. Cockerill, H., & Carroll'Few, L.(2001). *Communicating without speech: Practical Augmentative and Alternative Communication.* London: Mac Keith Press.
5. Cockerill, H., & Carroll-Few, L. (2010). *Communicating without speech: Practical Augmentative and Alternative Communication for children* (Clinics in Developmental Medicine). Baltimore, MD: Paul.H.Brookes Publishing Company.
6. Dunn, M. L., (1982). *Pre-sign language motor skills: skill starters for motor development*. Tucson, AZ: Communication skill builders.
7. Glennan, S., & Decoste, D. (1997). *The Handbook of Augmentative and Alternative Communication.* San Diego, CA: Singular Publishing Group.
8. Lloyd, L. L., Fuller, D.R., & Arvidson, H. H.(1997). *Augmentative and Alternative communication – A handbook of principles and practices.*, Massachusetts: Allyn and Bacon.
9. Loncke, F. T., Clibbens, J., Arvidson, H. H., & Lloyd, L. L. (1999). *Augmentative and Alternative communication- new directions in research and practice.* Whurr publishers, London.
10. Pain, H., McLellan, L., & Gore, S.(2003). Choosing assistive devices – A guide for users and professionals. London : Jessica Kingsley Publishers.
11. Silverman, F. H. (1980). *Communication for the speechless – An introduction to nonvocal communication systems for the severely communicatively handicapped.* Englewood Cliffs, N. J:Prentice-Hall Inc.
12. Vanderheiden, G. C., & Grilley, K . (1975). *Non-vocal communication techniques and aids for the severely physically handicapped.* Baltimore University: Park press.
13. Von Tetzchner, S., & Nicols Grove. (2010). *Augmentative and Alternative Communciation: Developmental Issues.* Baltimore, MD: Paul.H.Brookes Publishing Company.

Unit 3

1. Acredolo, L., & Goodwyn, S. (1996). *Baby Signs*. Chicago, Il.
2. Battison, R. (1978). *Lexical borrowing in American sign language*. Maryland: Linstok press Inc.
3. Bellugi, U., & Studdert-kennedy, M. (1980). *Signed and spoken language: Biologial constraints on linguistic form.* Berlin:Verlag Chemie.
4. Beukelman, D. R., Yorkston, K. M., & Dowden, P. (1985). *Communication augmentation – A casebook of Clinical management.* California: College Hill press Inc.
5. Chamberlain, C., Morford J. P., & Mayberry, R. I. (2000). *Language acquisition by eye*. New Jersey :Lawrence Erlbaum associates Publishers.
6. Cockerill, H., & Carroll'Few, L.(2001). *Communicating without speech: Practical Augmentative and Alternative Communication.* London: Mac Keith Press.
7. Cockerill, H., & Carroll-Few, L. (2010). *Communicating without speech: Practical Augmentative and Alternative Communication for children* (Clinics in Developmental Medicine). Baltimore, MD: Paul.H.Brookes Publishing Company.
8. Downing, J.E.. (1999). *Teaching communication skills to students with severe disabilities.* Baltimore, MD: Paul.H.Brookes Publishing Company.
9. Dunn, M. L., (1982). *Pre-sign language motor skills: skill starters for motor development*. Tucson, AZ: Communication skill builders.
10. Goossens, C., Crain, S., & Elder, P (1992). *Engineering the preschool environment for interactive symbol communication: 18months to 5 years developmentally*. Birmingham, AL: Southeast Augmentative Communicaiton Conference Publications.
11. Humphries, T., & Padden, C. (1992). *Learning American sign language*. New Jersey: Prentice-hall Inc
12. Johnson, J.M., Baumgart, D., Helmstetter, E., & Curry, C. (1996). *Augmenting basic communication in natural contexts.* Baltimore, MD: Paul.H.Brookes Publishing Company.
13. Kiernan, C., Reid, B., and Jones, L. (1982). *Signs and symbols – use of non-vocal communication systems.* London: Heinemann educational books.
14. Light, J.C., Beukelman, D. R., & Reichle, J. (2003). *Communicative competence for individuals who use AAC – from research to effective practice.* Baltimore: H. Brookes Publishing Co.
15. Light J.C., & Biger, C. (1998). *Building communication competence with individuals who use Augmentative and Alternative Communication*. Baltimore, MD: Paul.H.Brookes Publishing Company.
16. Siegel-Causey, E., & Guess, D. (1989). *Enhancing nonsymbolic communication interactions among learners with severe disabilities*. Baltimore, MD: Paul.H.Brookes Publishing Company.
17. Vicker, B. (1996). *Using tangible symbols for communication purposes: An optional step in building the two-way communication process.* Bloomington, IN: Indiana University. Institute for the Study of Developmental Disabilities.

Unit 4

1. Emmorey, K. (2002). *Language, cognition and the brain – Insights from sign language research.* NJ: Lawrence Erlbaum Asscociates Inc. Pub.
2. Goldin-Meadow, S. (2003). *The resilience of language – what gesture creation in deaf children can tell us about how all children learn language*. New York: Psychology press.
3. Romski, M.A., & Sevick, R.A. (1996). *Breaking the speech barrier: Language development through augmented means*. Baltimore, MD: Paul.H.Brookes Publishing Company.
4. Schlesinger, I. M. & Namir, L. (1978). *Sign language of the deaf – Psychological, linguistic and sociological perspectives.* New York: Academic press Inc
5. Siple, P. (1978). *Understanding language through sign language research*. New York: Academic Press.Stewart, D. A., Schein, J. D. & Cartwright, B. E. (1998). *Sign language interpreting – Exploring its art and science.*, Boston: Allyn and Bacon.

Paper Code: SLP 4.3 - HC: ***Suprasegmentals and Music Acoustics***

Objectives

After going through this course the student will be able to explain or understand

- Models of intonation, rhythm, and stress, and the various scales of music
- Methods used in research on suprasegmentals
- Aprosodia in clinical population

COURSE CONTENT

Unit 1

Intonation – Introduction, elements of intonation tones, pitch phonemes and pitch levels pitch movements, configurations and nuclear tone, pitch accents, phrase tones and boundary tones, intonation groups / boundary markers, other boundary markers, models in intonation, the British school, the American school, intonation in generative grammar, the Lund school the Dutch school intonation in Nonlinear phonology.

Phonological models, acoustic phonetic models, Gronnum's model, Lund intonational model, super positional intonation model, Bell labs intonation model.

Perceptual models, functional model, issues related to the analysis of intonation, levels versus configuration, structure of intonation pattern, declination.

Function of intonation – lexical functions, phrase and sentence functions, discourse and dialogue functions.

Application of intonation – technical application, speech synthesis, speech recognition, speaker verification, language identification, educational application, prosodic training, foreign language training, providing feedback for the hearing impaired.

Dimensions of tonal contrasts, acquisition of intonation by infants: Physiology and neural control, tone language, basic characteristics of tone, transcription of tones, contrastive tones, register tone language, contour tone language, representation of tone language.

Tone Sandhi, physiological correlate of intonation pattern, tests of intonation – T – TRIP test, synthetic test of intonation pattern, intonation in pathological conditions, neurological lesions, hearing impairment.

Stress – Definition, characteristics of stressed syllables, level and types of stress, stressed timed and syllable timed languages, level stress, crescendo stress, diminuendo stress,

crescendo-diminuendo stress, word stress, bound stress phonemic stress, morphological stress, sentence stress, primary stress, contrastive stress, emphatic stress.
Changes in stress – Perceptual, syntactic lexical, pragmatic, development of stress, perception, production, physiological mechanisms of stress, perceptual, acoustic correlates, measurement of stress, mechanical recognition, computer aided recognition.

Rhythm – Introduction, definition, development of rhythm, models of rhythm, comb model, chain model, isochrony model, tests of rhythm, T-TRIP test, synthetic test of rhythm, rhythm in non- Indian Languages and in Indian Languages, Rhythm class hypothesis and testing the hypothesis, Pair-wise Variability Index.

Unit 2

Neural basis of suprasegmentals and dysprosody, Functional localization hypothesis, Differential cue lateralization hypothesis (RH Hypothesis, F0 hypothesis and supporting studies), processing of prosodic features, hemispheric lateralization, types of dysprosody in various disorders.

Unit 3

Prosodic feature in various speech and language disorders, hearing impairment – voicing control, pitch control, pitch range and level length, pauses, apraxia, SLI, autism, stuttering, flaccid dysarthria, spastic dysarthria, unilateral UMN dysarthria, ataxic dysarthria, hyper kinetic dysarthria, hypo kinetic dysarthria, mixed dysarthria, amyotrophic lateral SC lesions, Wilson's disease, multiple sclerosis, multilingual and multicultural variations in prosody, cross-language use of pitch, pitch and expressive volcalization / intonation.

Unit 4

Introduction, definitions, historical development of Indian music

Components of music - Rhythm, melody, tonality, harmony, scale, tuning, temperament and intonation

Musical scales – Pythogorean, Mean tone temperament / Quarter – Common Mean tone temperament, Scale of Just Intonation / Just diatonic / Musical diatonic scale / scale of pitch sensation, Equal temperament scale, Comparison of scales.
Physiology of singing – Definition, physiological factors, posture of breathing in singing
Prerequisites of singing – Humidity, noise, speaker-listener distance, stance / posture, breathing support, laryngeal position, jaw position, tongue position, perception, artistry
Respiratory basis of singing – Respiratory requisites in singing
Phonatory bases of singing – Phonatory and resonatory requisites for singing
Aging in professional voice – Physiology and acoustics
Singer's voice problems – prevention of voice problems and care of singing voice
Warm up exercises – Exercises for changing voice pitch and loudness

References

Unit 1

1. Johns – Lewis, C. (1986) Intonation in discourse, College –Hill Press, Inc, San Diego.
2. Phonetica (2009) – Speech Issues on Speech rhythm.
3. Funded research projects reports in AIISH Library and information center.

Unit 2 and 3

Below mentioned Journals*.

Unit 4

1. Leeuwen, T. V. (1999). Speech, Music and sound. Macmillan Press Ltd., Hong Kong.
2. Bunch, M. A. (1982). Dynamic of singing Voice. Springer – Verlag/Wien, New York.
3. Proctor, D. F. (1980). Breathing, Speech and Song. Springer – Verlag/Wien, New York.

***List of Journals**

1. Asia Pacific J of Speech Language and Hearing
2. Brain
3. Brain and Language
4. Cleft Palate
5. Cortex
6. Edn & Tg in MR & Developmental Disability
7. Folia Phoniatrica
8. International J of Language & Communication Disorder
9. J of Acoustic Society of America
10. J of Child Language
11. J of Communication Disorders
12. J of Fluency Disorders
13. J of Learning Disability
14. J of Speech language & hearing Research
15. J of Voice
16. Language Learning
17. Language Speech & hearing Services in Schools
18. Linguistics Language Behavior Abstract
19. Otolaryngologic clinic of North America
20. Phonetica
21. Seminars in Speech and Language
22. Speech communication
23. J of Medical Speech – Language Pathology

Paper Code: SLP 4.4* - **HCC:** ***Clinical Practicum I***

Paper Code: SLP 4.5 - HC: ***Dissertation***