Manipal College of Health Professions

(Mangaluru Campus)

Manipal Academy of Higher Education, Manipal

Outcome-Based Education (OBE) Framework

Two Years Full Time

Postgraduate Program

(Semester and Credit System)

Master of Science in Speech - Language Pathology

(M.Sc. SLP)

With effect from July 2021

T A B L E   O F   C O N T E N T

Head of the Department   **Dean**

Deputy Registrar - Academics   **Registrar**

1. NATURE AND EXTENT OF THE PROGRAM

Background and need for the program

Speech Language Pathology is a branch of science that deals with the normal and abnormal aspects of voice, speech, language and swallowing. Students of Masters in Speech Language pathology are trained to function as teachers and researchers in institutions of higher education, clinicians to diagnose and manage disorders of speech, language, and swallowing across life span, counsel and guide persons with disorders of speech, language and swallowing as well as their family members, implement rehabilitation programs for persons with speech, language and swallowing disorders, to function as the disability certification authority in the field, liaise with professionals in allied fields and other stake holders, implement prevention and public education programs, undertake advocacy measures on behalf of and for persons with speech, language and swallowing disorders, advise government and other institutions on legal and policy issues related to persons with communication disorders, and to establish and administer institutions of higher learning.

Program duration and aim of the program

The course-Masters in Speech Language Pathology (MSc SLP), is a full-time two year course and should be completed within four years from the date of admission. The Department, in its academic planning has kept excellent balance between theoretical, clinical and research orientated training in order to develop professional judgment and scientific competence for the trained Speech Language Pathologists. The Postgraduate programme in Speech-Language Pathology aims to impart advanced knowledge and skills as applicable to the profession of Speech-Language Pathology. The programme is designed to develop manpower to contribute to theoretical, clinical, research, field-based and technology based knowledge to the discipline of Speech-Language Pathology. The programme focuses on differential diagnosis and management of communication disorders and conduct research to further the profession in the country and abroad.

Entry level qualification and scope of the program

Candidates applying for admission to MSc SLP course should have BASLP/B.Sc.(Speech & Hearing) degree from any recognised university accredited by the Rehabilitation Council of India with a minimum of 55% aggregate marks relaxation in the qualifying marks for designated categories of students shall be as per rules and regulations of respective University / State / Union Territories or the Central Government. An online entrance examination based on the B.Sc. (Sp. & Hg.) / BASLP syllabus will be conducted by the Manipal Academy of Higher Education for the selection of candidates. Admission will be made only on the basis of merit of the entrance examination conducted by the university for this purpose. MAHE admits candidates under General or Foreign / NRI category, on fulfilling the eligibility requirements. All admissions are on the basis of merit only. Foreign / NRI category seats are only available for foreign nationals / candidates with NRI status or those sponsored by relatives with NRI status. Foreign / NRI category seats are **NOT** equivalent to payment / management / reserved seats.

Medium of Instruction

Medium of instruction shall be in English

2. PROGRAM EDUCATION OBJECTIVES (PEOs)

The overall objectives of the learning outcome-based curriculum framework (LOCF) for MSc SLP are as follows:

PEO No.	Education Objective
PEO 1	Students will be able to use their fundamental knowledge and clinical competence in various scientific aspects of human communication, speech, language, and swallowing on the basis of anatomical and physiological, cognitive, psychological, and sociological dimensions. Further, they would be capable of functioning as members of the disability certification team.
PEO 2	Students will demonstrate strong and well defined clinical / practical skills to plan, implement, and modify clinical services across a wide range of population including individuals from culturally and linguistically diverse groups
PEO 3	Students will be able to practice with highly professional and ethical attitude, strong communication skills, work with an inter-disciplinary team so as to adopt an interprofessional perspective in evaluation and treatment of communication, speech, language, and swallowing disorders across the lifespan. In addition, they would be capable of participating and contributing to government and other institutions on legal and policy issues related to persons with communication disorders.
PEO 4	Students will be able to use interpersonal and collaborative skills to identify, assess and formulate problems and execute appropriate solutions over the span of communication, speech, language and swallowing disorders. They would also be empowered to implement prevention and address public education programs
PEO 5	Students will be able to imbibe the culture of research, innovation, entrepreneurship and incubation through evidence-based practice in communication, speech, language, and swallowing disorders. They would be prepared to participate & contribute to establishing and administering institutions of higher learning.
PEO 6	Students will be able to participate in lifelong learning process for a highly productive career and will be able to relate the concepts of trends and issues in the discipline of speech language pathology. They would, in addition undertake advocacy measures on behalf of and for persons with Speech Language and Swallowing disorders.

3. GRADUATE ATTRIBUTES

S No.	Attribute	Description
1	**Domain Knowledge**	Demonstrate comprehensive knowledge, competency and understanding of one or more disciplines that form a part of a professional domain
2	**Clinical / Hands-on skills**	Demonstrate clinical / hands-on skills in order to deliver and manage quality health care services
3	**Communication Skills**	Demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups using appropriate media.
4	**Team work**	Demonstrate the ability to effectively and efficiently work and collaborate with diverse teams in the best interest of health care needs of the community
5.	**Professional ethics**	Demonstrate the ability to embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in professional life.
6.	**Research / Innovation-related Skills**	A sense of inquiry and investigation for raising relevant and contemporary questions, synthesizing and articulating.
7.	**Critical thinking and problem solving**	Demonstrate capacity to think critically and extrapolate from what one has learned by applying their competencies and knowledge to solve different kinds of non-familiar problems in real life situations.

S No.	Attribute	Description
8	**Information/Digital Literacy**	Demonstrate capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources and to use appropriate software for analysis of data.
9	**Multicultural Competence**	Demonstrate knowledge of the values and beliefs of multiple cultures and a global perspective, effectively engage in a multicultural society, interact respectfully with diverse groups.
11.	**Leadership qualities**	Demonstrate leadership capability to formulate an inspiring vision, build a team, motivate and inspire team members to attain organizational vision
12.	**Lifelong Learning**	Demonstrate the ability to acquire knowledge and skills that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to demands of work place through knowledge/skill development/reskilling.

4. QUALIFICATION DESCRIPTORS:

a) Demonstrate (i) a systematic, extensive and coherent knowledge and understanding of an academic field of study as a whole and its applications, and links to related disciplinary areas/subjects of study, including a critical understanding of the established theories, principles and concepts, and of a number of advanced and emerging issues/theories in the field of Speech Language Pathology; (ii) procedural knowledge that creates different types of professionals related to the disciplinary/subject area of study, including research and development, teaching and government and public service; (iii) skills in areas related to one's specialization and current developments in the academic field of Speech Language Pathology, including a critical understanding of the latest developments in the area of specialization, and an ability to use established techniques of analysis and enquiry within the area of specialization in Speech Language Pathology

b) Demonstrate comprehensive knowledge about materials and methods, including professional literature relating to essential and advanced learning areas pertaining to the chosen disciplinary area(s) and field of study, and techniques and skills required for identifying/solving problems and issues relating to the disciplinary area and field of study.

c) Demonstrate skills in identifying information needs, collection of relevant quantitative and/or qualitative data drawing on a wide range of sources, analysis and interpretation of data using methodologies as appropriate to the subject(s) for formulating evidence-based solutions and arguments.

d) Use knowledge, understanding and skills for critical assessment of a wide range of ideas and complex problems and issues relating to the field

e) Communicate appropriately with all stakeholders, and provide relevant information to the members of the healthcare team

f) Address one's own learning needs relating to current and emerging areas of study, making use of research, development and professional materials as appropriate, including those related to new frontiers of knowledge

g) Apply one's domain knowledge and transferable skills that are relevant to some of the job trades, employment opportunities and seek solutions to real-life problems.

5. PROGRAM OUTCOMES (POs):

After successful completion of Masters / MSc Speech Language Pathology program students will be able to:

PO No.	Attribute	Competency
PO 1	**Domain knowledge**	Possess and acquire **scientific knowledge** to work as a health care professional
PO 2	**Clinical/ Hands-on skills**	Demonstrate and possess **clinical and hands-on skills** to provide quality health care services
PO 3	**Team work**	Demonstrate **team work skills** to support shared goals with the interdisciplinary health care team to improve societal health
PO 4	**Ethical value & professionalism**	Possess and demonstrate **ethical values and professionalism** within the legal framework of the society
PO 5	**Communication**	**Communicate effectively** and appropriately with the interdisciplinary health care team and the society
PO 6	**Evidence based practice**	Demonstrate high quality **evidence based practice** that leads to excellence in professional practice
PO 7	**Life-long learning**	Enhance knowledge and skills with the use of advancing technology for the **continual improvement** of professional practice
PO 8	**Entrepreneurship, leadership and mentorship**	Display **entrepreneurship, leadership and mentorship** skills to practice independently as well as in collaboration with the interdisciplinary health care team

6. COURSE STRUCTURE, COURSE WISE LEARNING OBJECTIVE, AND COURSE OUTCOMES (COs)

SEMESTER - I

Course code	Course title	Credit Distribution (S,SDL,CL and C are Hr/Week)				Marks Distribution		
		S	SDL	CL	C	IAC	ESE	Total
ABS6101	Advanced Biostatistics & Research Methodology	3	1	-	4	30	70	100
SLP6101	Speech Science and Speech Production	3	1	-	4	20	80	100
SLP6102	Augmentative and Alternative Communication	3	1	-	4	20	80	100
SLP6103	Neurobiology of Speech-language and Cognition	3	1	-	4	20	80	100
SLP6105	Clinical Linguistics & Multilingual Issues	3	1	-	4	20	80	100
SLP6131	Clinicals - I	-	-	18	6	100	-	100
	Total	**15**	**5**	**18**	**26**	**210**	**390**	**600**

Note : ESE for theory papers will be conducted for 100 marks and normalized to 80 for all the subjects except Statistics.
ABS6101,ESE will be conducted for 50 and normalized to 70.

SEMESTER - II

Course code	Course title	Credit Distribution (S,SDL,CL and C are Hr/Week)				Marks Distribution		
		S	SDL	CL	C	IAC	ESE	Total
SLP6201	Advances in Speech Sound Disorders	3	1	-	4	20	80	100
SLP6202	Voice : Science and Disorders	3	1	-	4	20	80	100
SLP6203	Disorders of Fluency	3	1	-	4	20	80	100
SLP6204	Language Disorders in Children	3	1	-	4	20	80	100
SLP6231	Clinicals -II	-	-	18	6	-	100	100
	Total	**12**	**4**	**18**	**22**	**80**	**420**	**500**

Note: ESE for theory papers will be conducted for 100 marks and normalized to 80 for theory subjects

SEMESTER - III

Course code	Course title	Credit Distribution (S,SDL,CL and C are Hr/Week)				Marks Distribution		
		S	SDL	CL	C	IAC	ESE	Total
SLP7101	Neurogenic Speech Disorders	3	1	-	4	20	80	100
SLP7102	Dysphagia	3	1	-	4	20	80	100
SLP7103	Aphasia	3	1	-	4	20	80	100
SLP7104	Cognitive Communication Disorders	3	1	-	4	20	80	100
SLP7131	Clinicals -III	-	-	18	6	100	-	100
	Total	12	4	18	22	180	320	500

Note : ESE for theory papers will be conducted for 100 marks and normalized to 80

SEMESTER - IV

Course code	Course title	Credit Distribution (S,SDL,CL and C are Hr/Week)					Marks Distribution		
		S	SDL	CL	PW	CR	IAC	ESE	Total
SLP7201	Practices in Speech-language Pathology	3	1	-	-	4	20	80	100
SLP7202	Language and Literacy Disorders	3	1	-	-	4	20	80	100
SLP7251	Dissertation	-	-		13	9	20	80	100
SLP7231	Clinicals -IV	-	-	18	-	6	-	100	100
	Total	6	2	18	13	23	60	340	400

Note: ESE for theory papers will be conducted for 100 marks and normalized to 80

Summary of Credits and Marks distribution

Semester	Credit Distribution					Marks Distribution		Total
	S	SDL	CL	PW	C	IAC	ESE	
I	15	5	6	-	18	210	390	**600**
II	12	4	6	-	22	80	420	**500**
III	12	4	6	-	22	180	320	**500**
IV	6	2	6	9	23	60	340	**400**
	45	**15**	**24**	**9**	**93**	**530**	**1470**	**2000**

Distribution of Dissertation hours

Total of 405 hours of dissertation work will be distributed across all the four semester as mentioned below to accommodate the regulatory body requirements.

Semester	Hours	Activities
I	**2hrs/week (30 hrs)**	Selection of Topic, guide, literature search
II	**6hrs/week (90 hrs)**	Research Protocol preparation, Departmental level presentation, IRC presentation, Submission for ethical approval
III	**6hrs/week (90 hrs)**	Develop protocol for data collection, Writing Introduction, Literature review and method
IV	**13hrs/week (195 hrs)**	Data collection, Guidelines to write Result and Discussion, writing dissertation, attending manuscript wring workshops, Preparation of manuscript
Total Credits	**405 hrs**	

SEMESTER - I

COURSE CODE		COURSE TITLE
ABS6101	:	Advanced Biostatistics & Research Methodology
SLP6101	:	Speech Science and Speech Production
SLP6102	:	Augmentative and Alternative Communication
SLP6103	:	Neurobiology of Speech- language and Cognition
SLP6105	:	Clinical Linguistics & Multilingual Issues
SLP6131	:	Clinicals - I

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Advanced Biostatistics & Research Methodology**
Course Code	**ABS6101**
Academic Year	First
Semester	I
Number of Credits	4
Course Prerequisite	Students should have basic knowledge of research and statistical tools
Course Synopsis	This course enables the student to understand the basics of research methods and design a research protocol for their research question. Additionally the course also enables the student to estimate sample size for their study, use statistical tests to analyse the results of the study and make meaningful interpretations.

Course Outcomes (COs): At the end of the course student shall be able to:

CO1	Define the terms related to statistics and research methods (C1)
CO2	List and explain the research designs and sampling techniques (C2)
CO3	Explain, calculate and interpret the measures of central tendency (C4)
CO4	Determine sample size for the studies using means and proportions formula (C5)
CO5	Analyse and interpret the outputs of parametric and non-parametric tests (C4)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2	x					x		
CO3	x							
CO4	x						x	
CO5	x							

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1	• Define statistics (C1) • List the uses of statistics in health science research. (C1) • Explain the role of Statistics in clinical and preventive Medicine. (C2) • Differentiate qualitative and quantitative variables with	**3 Lecture 1 Tutorial**

Content	Competencies	Number of Hours
	examples. (C3) • Differentiate discrete and continuous variables with examples. (C4) • List the properties of various scales of measurement with example. (C1) • Define central tendency, measure of central tendency. (C1) • Define arithmetic mean, median and mode. List the properties, situation for use, and examples. (C1) • Determine the three measures from raw data. (C5)	
Unit 2:		
	• Define and calculate quartiles and percentiles. (C4) • Define measures of dispersion (C1) • Define, calculate and interpret range, quartile deviation, interquartile range, standard deviation, variance and coefficient of variation.(C4) • Give the situation for the use of these measures (C2).	**3 Lecture 1 Tutorial**
	• Describe the properties of Normal and Standard Normal Distribution with sketch (C2) • List the applications.(C1) • Calculate probabilities recollecting the coverage of the intervals mean±SD, , mean±2SD, mean±3SD (C4) • Define skewness and list the characteristics with sketch.(C1) • Define kurtosis and list the characteristics with sketch.(C1) • Define and differentiate parameter and statistic with examples (C4). • Define the basic terms-population, sample, sampling, parameter, statistic, estimate and estimator. (C1) • Define Point estimate (C1) • Define and Differentiate standard deviation and standard error (C4) • Define sampling distribution (C1) • Describe the importance of sampling distributions of different statistics.(C2) • Determine the sampling distribution of sample mean, sample proportion, difference between two means, difference between two proportions (Large sample approximation (CLT).(C5) • Calculate the standard error of mean, proportion, difference between two means, and difference between two proportions. (Large sample approximation (CLT). (C4)	**3 Lecture 2 Tutorial**
	• Construct and interpret confidence interval for mean,	**3 hours**

Content	Competencies	Number of Hours
	difference between two means, proportion, difference between two proportions (large sample approximation) (C5)	
Unit 3:		
	- Define /explain with example the concept of null hypothesis, alternative hypothesis, type I and type II errors. (C2) - Define level of significance, power of the test and p-value (C1) - Explain the difference between one sided and two-sided test (C2) - Give the situation for non-parametric tests. (C2) - List the differences, merits and demerits of non-parametric over parametric tests. (C1)	**3 Lecture 1 Tutorial**
	- Explain the situation, hypothesis tested, assumptions and example for paired and unpaired t-test. (C2) - Interpret the output of paired and unpaired t-test (C4) - Explain the situation, hypothesis tested, assumptions and example for one-way and repeated measures ANOVA (C2)	**3 Lecture**
	- Explain the situation, hypothesis tested, assumptions and example for : Mann-Whitney U-test, Wilcoxon signed rank test, Kruskal-Wallis ANOVA and Friedman's ANOVA (C2) - Explain the situation, hypothesis tested, assumptions and example for Chi square test association/independence and McNemar's test for association (C2) Computation and interpretation of chi-square test (2 x2 table) and McNemar's test result (C2)	**3 Lecture 1 Tutorial**
	- Give example for positive and negative correlations. (C2) - Explain different types of correlation with the help of scatter diagrams. (C2) - Give the assumptions, properties, and interpretation of correlation coefficient.(C4) - Explain the situation for the computation of Pearson's and Spearman's correlation coefficient. (C2) - Interpret coefficient of determination.(C4) - Explain the situation, example, application and assumptions for linear and multiple regression.(C2) - Interpret regression coefficients in simple and multiple regression.(C4) - Explain the need for sample size computation.(C2) - Given the situation/ingredients, should be able to	**3 Lecture 1 Tutorial**

Content	Competencies	Number of Hours
	determine sample size for estimating mean and proportion, testing of difference in means and proportions of two groups.(C5)	
	• Explain the difference between rate, ratio, and proportion with example. (C2) • Calculate rate, ratio, and proportion (C4) • Define and calculate Incidence and prevalence rates.(C4) • Explain the design, merits and demerits of Case report, case series analysis, prevalence studies and ecological studies with example (C2)	**3 hours**
	• Explain the design, analysis (2x2 table and odds ratio), merits and demerits ((unmatched and 1:1 matched design) of case control study with example.(C2) • Explain the design, analysis (2x2 table and relative risk), merits and demerits of cohort study with example.(C2)	**3 hours**
	• Explain confounding with example. (C2) • List the methods to deal with confounding at design and analysis stage.(C1) • Explain the design, analysis, merits and demerits of RCT with example. (C2) • Explain the need of simple, block and stratified randomization with example.(C2) • Explain the need and type of blinding with example (C2)	**3 Lecture 1 Tutorial**
	• Explain the situation for the use of logistic regression and survival analysis with example.(C2)	**3 Lecture**
	• Define Population, sample, sampling, and sampling frame. Give one example each.(C1) • List the characteristics of a good sample.(C1) • Differentiate and list the advantages and disadvantages of random and non- random sampling techniques.(C4) • Explain simple, stratified, systematic, cluster and multistage random sampling techniques with examples. List the merits and demerits of each of them.(C2) • Explain Convenience, quota, judgment and snowball sampling with examples. List the merits and demerits of each of them.(C2) • Explain the difference between sampling and non-sampling errors. Give example for sampling and non-sampling errors. List the methods to minimize these errors.(C2)	**3 Lecture 1 Tutorial**

Content	Competencies	Number of Hours
	• Define Sensitivity, specificity, PPV and NPV. (C1) • Explain with example method of computation and interpretation. (C4) • Explain with example, the situation for the application of Bland Altman plot, Kappa statistic. (C2) • Explain the interpretation of Kappa Statistics. (C2) • Explain the format of various research documents. (C2)	**3 Lecture** **1 Tutorial**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Lecture	42	84
Tutorial	4	8
Self-directed learning (SDL)	6	12
Total	**52**	**104**

Assessment Methods	
Formative	**Summative**
Assignments/Presentations/Quiz	Mid Semester Exam
	End Semester Exam

Mapping of Assessment with COs					
Nature of Assessment	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Mid Semester Examination	x	x	x		
Quiz / Assignment				x	x
End Semester Exam	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main Reference	• Research for Physiotherapists: Project Design and Analysis –Caroline Hicks. (1995) • Tests, Measurements and Research in Behavioural Sciences by A K Singh (1986) • Rehabilitation Research - E-Book: Principles and Applications by Russell Carter, Jay Lubinsky, et al. (2015) • Foundations of Clinical Research by Leslie Gross Portney (2020) • Essentials of Research Methodology for all Physiotherapy and Allied Health Sciences Students by Ramalingam Thangamani A (2018)

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Speech Science and Speech Production**
Course Code	**SLP6101**
Academic Year	First
Semester	I
Number of Credits	4
Course Prerequisite	The student should have a basic knowledge in speech acoustics and physiology of speech production.
Course Synopsis	The module will provide information on the physiology of speech production, acoustic theory, acoustic and aerodynamics of speech sounds and applications of speech sciences.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To describe physiology of speech production (C2)
CO2	To discuss the acoustic theories of speech production(C2)
CO3	To understand instrumentation for studying speech (C2)
CO4	To comprehend the acoustic analysis and speech synthesis (C2)
CO5	Application of acoustic and aerodynamics of speech sounds (C3)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x				x			
CO2	x				x			
CO3	x	x						
CO4	x	x						
CO5	x		x					

Content	Competencies	Number of Hours
UNIT 1 Introduction to the Study of Speech Physiology	a) Explain the physiological aspects of speech production (respiration, laryngeal and articulatory subsystem) (C2) b) Explain and compare the aerodynamics of speech: mechanics of airflow and maintenance of airway pressure for speech (C2) c) Explain Speech breathing (C2) d) Describe the lower air way dynamics: anatomy (C2)	12

Content	Competencies	Number of Hours
	e) Discuss laryngeal and lung activity in speech: conversational speech and loud speech (C2) f) Distinguish glottal activity in the production of speech sounds and whisper (C2) g) Explain the Upper airway dynamics and constrictors in upper airway (C2) h) Summarize the aerodynamics of speech sounds (C2) i) Describe the measures of respiratory analysis and instrumentation: intraoral and sub glottal pressure; instrumentation (C2)	
UNIT 2 Theories of Speech Production	a) Review the acoustic theory of speech production: source and filter characteristics; output speech and its characteristics (C2) b) Appraise and critically evaluate the acoustic theory of speech production (C6) c) Inspect the aspects of speech acoustics (C2) d) Inspect the aspects of prosody and their realization (C2) e) Summarize the characteristics and production of vocal music and contrast with speech production (C4)	**12**
UNIT 3 Instrumentation for Studying Speech	a) Explain the acoustic analysis of speech - techniques of digital signal processing, Long Term Average Spectrum (C2) b) Recognize the software for acquisition and acoustic analysis – free and patented software (C1) c) Analyze and measure spectrogram: Identification of sounds and their acoustic features through spectrogram (C4) d) Application of physiological measurements: Techniques and instrumentation like Electromyography Stroboscope, Electroglottography, Ultrasound, EMMA, evoked potentials, fMRI, PET (C3)	**12**
UNIT 4 Acoustic and Aerodynamic Characteristics of Speech Sounds	a) Analyze and measure the acoustic and aerodynamics characteristics of vowels and diphthongs (C4) b) Analyze and measure acoustic and aerodynamics characteristics of plosives (C4) c) Analyze and measure acoustic and	**12**

Content	Competencies	Number of Hours
	aerodynamics characteristics nasal consonants (C4) d) Analyze and measure acoustic and aerodynamics characteristics fricatives (C4) e) Analyze and measure acoustic and aerodynamics characteristics other consonants - affricates, glides and liquids (C4) f) Explain the effects of context and speaker (C2)	
UNIT 5 **Application of Acoustic Analysis and Speech Synthesis**	a) Applications of acoustic analysis in speech disorders (C3) b) Recognize the forensic applications: semiautomatic and automatic methods (C2) c) Explain the infant cry analysis-characteristics of normal and abnormal cries, models, infant cry as a tool for early identification of high-risk babies (C2) d) Application of speech synthesis: articulatory, parametric synthesis and analysis by synthesis (C3)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	40	80
Self-directed learning (SDL)	15	30
Practical	5	10
Total	**60**	**120**

Assessment Methods	
Formative	**Summative**
Mid Semester/Sessional Exam (Theory)	End Semester Exam (Theory and/or practical)
Seminars/Assignments/ Class test	

Mapping of Assessment with COs					
Nature of Assessment	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Mid Semester Examination	x	x	x		
Seminars/Assignments/Class test	x	x	x	x	x
End Semester Exam	x	x	x	x	x
Feedback Process:	Mid-Semester Feedback				
	End-Semester Feedback				

Main Reference	• Kent, R. D., & Read, C. (2002).The Acoustic Analysis of Speech. New York, Delmar Learning. • Borden, G. J., & Harris, K. S. (2011). Speech Science Primer, Philadelphia. Lippincott, William & Wilkins.
Additional References	• Hixon, T. J., Weismer, G., &Hoit, J. D. (2014).Preclinical Speech Sciences; Anatomy Physiology Acoustics Perception.San Diego, Plural Publishing. • Ferrand, C. T. (2007). Speech Science – An Integrated Approach to Theory and Practice.2nd Edition, Boston, Allyn& Bacon • Hollien, H. (2002). Forensic Voice Identification. NY, Academic Press Inc. • Ladefogd, P. (2001). An Introduction to the Sounds of Languages; Vowels and Consonants. Oxford, Black Well • CIIL Publications on the production of sounds in different languages of India

Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Augmentative and Alternative Communication**
Course Code	**SLP6102**
Academic Year	First
Semester	I
Number of Credits	4
Course Prerequisite	The student should have Basic knowledge on the augmentative and alternative communication.
Course Synopsis	This module will impart a comprehensive knowledge about Augmentative and Alternative Communication with emphasis on its assessment and management.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To identify and describe various approaches and methods used in augmentative and alternative communication. (C3)
CO2	To select appropriate AAC strategies and assessment procedures for individuals with complex communication needs. (C3)
CO3	To explain the treatment plan for implementation of AAC with evidence based rationale(C5)
CO4	To discuss the status of the use of technology and practice of AAC for intervention in the Indian context (C6)
CO5	To analyse issues for research in the field of AAC (C4)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2	x	x						
CO3				x		x		
CO4		x	x					
CO5					x	x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Unit 1: Types, Classification and Description of AAC	a) Understanding the definition, history, need and classification of AAC (C2) b) Understanding team approach in AAC: Types, team members and their roles (C2) c) To describe aided systems and symbols in AAC: different types and	**12**

Content	Competencies	Number of Hours
	their details (C3) d) To describe unaided systems and symbols in AAC: Different Types and their details (C3) e) Understanding and summarizing technology in AAC: (C3) i) Communication Boards: Types ii) Low and high tech aids & devices: Types, Interfaces	
Unit 2		
Unit 2: Assessment for AAC	a) Understanding Models for assessment of AAC(C2) b) Identification of Formal and informal assessment: Standard tests and scales (C3) c) Determining physical/ motor and seating requirements, cognition, vision and hearing, speech perception (C3).	**12**
Unit 3		
Unit 3: AAC Intervention: Principles and Procedures	a) Understand the general Principles and Strategies – Aided and unaided AAC (C2) b) Selecting vocabulary and determining symbol representation of the vocabulary: - types of vocabulary, factors affecting choice of vocabulary (C4) c) Strategies for selection of symbols in AAC, their types and factors affecting decision making: direct selection, scanning, encoding, word prediction (C4) d) Selection and decision making with reference to low and high tech aids and devices(C4)	**12**
Unit 4		
	a) Determining intervention strategies for children with cognitive communication needs: (intellectually challenged, cerebral palsy, children with language disorders and children with dual and multiple disabilities). (C4) b) Determining specific intervention strategies for adults with cognitive	**12**

Content	Competencies	Number of Hours
	communication need: (C4) c) Temporary conditions: laryngectomy, voice disorders d) ii) Neurological conditions: Degenerative and non-degenerative conditions, Aphasia, traumatic brain injury e) iii) Structural disorders and disorders affecting speech intelligibility f) Measuring outcomes in using AAC and evidence based practices (C5)	
Unit 5		
	a) Application of technology: Hardware and software in intervention for children and adults with communication disorders (C3) b) Discuss current status of AAC in India and scope for research (C6) c) Adaptation of AAC in different set ups: home, schools, work place, and other social situations (C6) d) d) Explain the use and application of AAC for parents and caregivers. (C5)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	40	80
Small group discussion (SGD)	05	10
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods					
Formative		**Summative**			
Seminars/Assignments/Class test		End Semester Exam (Theory)			
Mid Semester/Sessional Exam (Theory)					

Mapping of Assessment with COs					
Nature of Assessment	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Mid Semester/Sessional Exam (Theory)	x	x	x		
Seminars/Assignments/Class test	x	x	x	x	x
End Semester Exam	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main reference	• Beukelman, D., &Mirenda, P. (2012). Augmentative and Alternative Communication: Supporting Children

	and Adults with Complex Communication Needs, Fourth Edition. Baltimore: MD.Paul Brookes Publishing.
	• Lloyd, L., Fuller, D., &Arvidson, H. (1997).Augmentative and alternative communication: Handbook of principles and practices.Boston, MA: Allyn& Bacon.
	• 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.
Additional reference	• McNaughton, D. &Beukelman, D.R. (2010).Transition strategies for adolescents & young adults who use AAC. Baltimore, MD: Paul H. Brookes Publishing Co.
	• Reichle, J., Beukelman, D.R., & Light, J.C. (2002) Exemplary practices for beginning communicators: Implications for AAC. Baltimore, MD: Paul H. Brookes Publishing
	• Soto, G., &Zangari, C. (2009).Practically Speaking Language Literacy & Academic Development for Students with AACNeeds.Baltimore: MD.Paul Brookes Publishing.
	• Mani, M.N.G., Gopalkrishnan, V., &Amaresh, G. (2001).Indian Sign Language Dictionary. Germany, CBM International.
	• Vasishta, M., Woodward, J., &Desantu, S. (1980). An Introduction to Indian Sign Language. New Delhi: All India Federation of the Deaf

Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Neurobiology of Speech-Language and Cognition**
Course Code	**SLP6103**
Academic Year	First
Semester	I
Number of Credits	4
Course Prerequisite	The student should have basic understanding of neuroanatomy and neurophysiology
Course Synopsis	In this course student will: 1. Review the anatomy and physiology of the nervous system related to speech, language, and cognition. 2. Understand the neuro-diagnostic, neuro-imaging, neuro-physiological, and neuro-behavioral procedures involved in understanding the speech, language and cognition mechanisms. 3. Understand the role of attention and memory in the development of speech and language mechanisms. 4. Understand the psychological and neural basis towards spoken/visual word recognition, sentence, and discourse processing. 5. Understand the language representation in the brains of monolinguals, bilinguals, and multilinguals. 6. Understand the neuroscience of aging and its effect on speech, language and cognition.

Course Outcomes (COs)
At the end of the course student shall be able to**:**

CO1	Understand and apply the role of neuroanatomy and neurophysiology of nervous system to speech-language and its disorders. (C2)
CO2	Know the laboratory-based procedures in understanding the neural bases of speech, language, and cognition. (C2)
CO3	Discuss and interpret the neuro-diagnostic findings (C2)
CO4	Describe the neural bases of speech, language, and cognition (C2)
CO5	Know the effect of aging on speech, language, and cognition mechanisms. (C2)
CO6	Discuss research relevant to neuroscience of speech, language, and cognition (C2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2		x				x		
CO3	x	x						
CO4	x					x		
CO5	x					x		
CO6						x	x	

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Anatomy and Physiology of the Nervous System Related to Speech-language	a) Explain the functioning of central nervous system and peripheral nervous system, cortical and subcortical pathways (C2) b) Describe the blood supply to CNS (C2) c) Explain the types and classification of neurotransmitters, its major location, functions and synthesis / chemical composition (C2) d) Explain the signal propagation in the nervous system (C2) e) Explain the neurotransmitters in neuropathological conditions influencing speech, language and related disorders (C2) f) Describe brain plasticity (C2) g) Explain the functional organization of brain, and the lateralization of its functions (C2) h) Compare and analyze neuroimaging studies on speech perception, comprehension, and production (C4)	**12**
Unit 2		
Methods of Understanding the Neurological Status of Speech-language Mechanisms	a) Plan a clinical examination to ascertain the neurological status - history, physical examination, reflexes (C3) b) Demonstrate neuro-diagnostic procedures for routine clinical examination – cranial nerve examination, sensory & motor examination, examination of mental functions (C3) c) Summarize neuro-imaging procedures: X-Ray, CT scan, MRI, fMRI, TcMS, PET, SPECT, and others - advantages and disadvantages (C2). d) Summarize neuro-physiological procedures - Evoked potentials (visual, auditory and somato-sensory), eye-tracking. electromyography (EMG),	**12**

Content	Competencies	Number of Hours
	magnetoencephalography (MEG) - Advantages and disadvantages (C2). e) Apply neuro-behavioral procedures - neurolinguistic investigation, priming and its types, reaction time measures and other related procedures (C3)	
Unit 3		
Cognitive Process Models and Implications of Information Processing for Speech-language	a) Comprehend types and models of Attention - Broadbent's Bottleneck Model, Norman and Bobrow's Model, Treisman model, Deutsch and Deutsch model (C2) b) Comprehend types and models of memory (Atkinson and Shiffrin's multistore Model, Craik and Lockhart's Levels of Processing model, Baddley's Working Memory model) (C2) c) Explain the role of attention and memory in the development of speech and language - models of cognitive-linguistic process (hierarchical, process, interactive, computational, neural network); bilingual models (simultaneous and sequential processing) (C2)	**12**
Unit 4		
Neural basis of Speech-language and Cognition	a) Understand the neural network of speech perception, semantic processing and sentence comprehension (C2) b) Explain the concepts involved in spoken word recognition, auditory word recognition, visual word recognition, sentence processing and discourse comprehension (C2) c) Explain the neural basis of speech production (sound, syllable, word and sentences) (C2) d) Apply the evidence from research studies - behavioral, neuroimaging and evoked potentials studies in normals and persons with neurological disorders (C3) e) Understand the neural basis for cognitive processes and its relation to language processes (C2) f) Explain the neural network for reading, writing and spelling (C2) g) Compare the representation of languages in monolingual, bilingual and multilingual brains (C4)	**12**
Unit 5		
Neuroscience of Aging and its Effect on Speech-	a) Comprehend the concept of aging - definition, types- (senescence and senility, primary and secondary aging, biological and psychological	**12**

Content	Competencies	Number of Hours
language	aging) (C2) b) Understand the phenomenon of aging (neurological, cognitive and behavioral correlates, structural changes with age, brain weight, ventricular size, microscopic changes and atrophy) (C2) c) Summarize the theories of aging - cellular, genetic, cumulative, random cell damage, programmed cell death, high level control of aging, cellular theories, geriatric theories and other theories (C2) d) Explain the effect of aging on cognitive dimension and speech perception (C2) e) Comprehend the neurophysiological / functional changes with age: accuracy, speed, range, endurance, coordination, stability and strength (C2) f) Understand the neurobehavioral correlates of aging -lateralization of functions across life span, cerebral asymmetry, electrophysiological and behavioral evidences (C2) g) Explain the effects of aging on speech and language across life span: in typical and pathological conditions (C2) h) Explain the effects of aging on cognitive dimension and speech perception (C2)	

Learning Strategies, Contact Hours and Student Learning Time (SLT):		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar /Tutorial/Lecture	40	80
Small Group Discussion (SGD)	5	10
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods	
Formative	**Summative**
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs						
Nature of Assessment	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
Mid Semester/Sessional Exam (Theory)	x	x	x			
Seminars/Assignments/Class test	x	x	x	x	x	x
End Semester Exam	x	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main Reference	• Hickok & Small (2015). Neurobiology of language. Academic Press. • Bhatia & Ritchie (2014). The handbook of bilingualism and multilingualism. 2nd Edition, John Wiley & Sons. • Moller (2010). Neural plasticity and disorders of the nervous system. Cambridge University Press • Arslan, O. E. (2015). Neuroanatomical Basis of Clinical Neurology.2nd Edition, New York, CRC Press. • Benarroch, E. E., Daube, R. J., Flemming, D. K. & Westmoreland, F. B. (2008). Mayo Clinic Medical Neurosciences.5th Edition, USA, Mayo Clinic Scientific Press. • Duffy, J. R. (2013). Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed.). University of Michigan, Elsevier Mosby. • Handy, T. C. (2005). Event-Related Potentials: A Methods Handbook. MIT press, London Kemmerer, D. (2015). Cognitive Neuroscience of Language. New York, Psychology Press. • Zigmond, M. J., Rowland, L. P. & Coyle J. T. (2015). Neurobiology of Brain Disorders: Biological Basis of Neurological and Psychiatric Disorders. Academic Press, New York. • Spivey, McRae, & Joanisse (2012). The Cambridge handbook of Psycholinguistics. Cambridge University Press • Guenther (2016). Neural control of speech. MIT Press. • Bhatnagar, S.C. (2012). Neuroscience for the Study of Communicative Disorders. Lippincott, Williams & Wilkins
Additional References	• Adams, R.D. & Sidman, R.L. (1968). Introduction to neuropathology. New Jersey: McGraw-Hill. Garden, E. (1968). • Fundamental of neurology, V Edn., Philadelphia: Sarenders Co. • Webb, W. G., & Adler, R. K. (2008). Neurology for the speech-language pathologist (5th ed.). St. Louis, Mo: Mosby/Elsevier.

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech- Language Pathology
Course Title	**Clinical Linguistics and Multilingual Issues**
Course Code	**SLP6105**
Academic Year	First
Semester	I
Number of Credits	4
Course Prerequisite	Student should have acquired basic knowledge about linguistics and phonetics in their bachelors level education
Course Synopsis	This course deals with theoretical principles of language structure, and the processes underlying its representation in the mind and brain. This course also enables students to consider factors such as multilingual and multicultural diversity and their effects on the processes underlying language. This is course is intended to form a context within which students may apply theoretical Linguistics to understanding language impairment.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Understand aspects of clinical linguistics relevant to speech-language pathology (C2)
CO2	Explain the models of language acquisition and their disorders related to various components of language (C2)
CO3	Discuss the theoretical background & related concepts in pragmatics and sociolinguistics (C2)
CO4	Explain the theoretical background & related concepts in psycholinguistics and second language acquisition (C2)
CO5	Discuss the theoretical background & related concepts in neurolinguistics (C2).
CO6	Summarize multilingual and multicultural issues in rehabilitation with reference to the diversity in India (C2)
CO7	Apply concepts covering above areas in their respective research relevant to the field of speech-language pathology (C3).

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2	x					x		
CO3	x	x						
CO4	x					x		
CO5	x		x					
CO6	x	x						
CO7						x	x	

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Introduction to Clinical Linguistics; Phonological, semantic and syntactic acquisition, and related disorders	a) Understand Clinical Linguistics and the scope of linguistics in clinical field (C2) b) Explain the hierarchical structure of language as Form, Content & Use (C2) c) Explain the theoretical principles of language structure, stages of acquisition, and their clinical relevance pertaining to phonology, morphology, syntax, and semantics (C2)	**22**
Unit 2		
Pragmatics and concepts in Sociolinguistics	a) Explain the theoretical principles – deixis, anaphora, truth conditionality, implicature, relevance, pre-supposition and the construct of context. (C2) b) Discuss the aforementioned principles as parameters that contribute to discourse comprehension (C2) c) Apply the understanding of discourse processing to various approaches to clinical analysis of discourse and narrative analysis. (C3) d) Understand how these parameters could result in pragmatic and discourse impairment (C2) e) Understand the development of pragmatics in children (C2) and apply the knowledge to understanding the impairment of pragmatics in various language disorders (C3) f) Outline the scope and clinical relevance of sociolinguistics (C1) g) Understand the notions – Social variation in language; notion of dialect and sociolect; factors influencing variation in language; issues related to dialectal variation applicable to individuals with language impairment; Stylistic variation of language; notions of style and register (C2) – to apply the same to understand how these can be variables in clinical settings (C3) h) Understand notions – diglossia, Pidgins & creoles – societal multilingualism resulting in language maintenance and death – demonstrate how they are of clinical relevance (C2)	**15**

Content	Competencies	Number of Hours
	i) Comprehend the notions – Language deficiency, Bernstein's Deficit hypothesis and related theories and illustrate their clinical relevance (C2)	
Unit 3		
Psycholinguistics and language acquisition	a) Understanding the scope and clinical relevance of psycholinguistics (C2) b) Describe the process of language acquisition and issues involved in it; Child directed speech - characteristics and role in acquisition (C1). Apply these notions clinically (C3) c) Explain Second language acquisition (SLA) - definition, types and factors affecting it; models of SLA (C2); and identity its relevance in making clinical decision (C1). d) Describe the notions of – simultaneous and successive SLA, its process and motivation; factors such as age of acquisition, proficiency, fluency, nativity and dominance (C1); to utilize implications of SLA on assessment and rehabilitation procedures. (C3) e) Summarize the premises of various psycholinguistics models of language pathology and compare and contrast among them (C2)	7
Unit 4		
Neurolinguistics	a) Summarize the scope and clinical relevance of neurolinguistics (C2) b) Express the notions – neuro-anatomical and neuro-physiological bases for language; Plasticity and lateralization of language function; role of right hemisphere in language (C2) – reorganize the same knowledge to classifying and categorizing language impairment from a neurolinguistic perspective (C4) c) Summarize the models and mechanism of neural encoding and decoding of language structure (including connectionist models, serial and parallel processing models and top-down and bottom-up strategies (C2) d) Explain the mechanisms underlying – processes of spoken and word recognition; sentence processing; and discourse comprehension (C2)	12

Content	Competencies	Number of Hours
Unit 5		
Multilingual and multicultural issues in communication	a) Describe the extent of linguistic diversity in India (C1). Classify Indian languages into families (C3) b) Illustrate the relationship between language and culture; and relationship between language & thought, through theories of Linguistic Determinism and Relativity, and Sapir-Whorf hypothesis (C2) c) Discuss cultural issues in verbal and non-verbal communication (C2); and strategize how to make use of notions in planning assessment and therapeutic procedures (C5) d) Apply the implications of linguistic and cultural diversity in clinical field in India (C3) and identify ways to neutralize their effects as variables in clinical practice and clinical research (C1)	**4**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**
Assessment Methods		

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3	CO4	CO5	CO6	CO7
Mid Semester / Sessional Examination 1	x	x	x				
Seminars/Assignments/Class test	x	x	x	x	x	x	x
End Semester Exam	x	x	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main Reference	• Ball, M. J., Perkins, M. R., & Muller, N. (Eds.). (2010). The Handbook of Clinical Linguistics. Blackwell. • Stemmer, B., & Whitaker, H. A. (2008). Handbook of the Neuroscience of Language. Academic Press.

Additional References	- Tartter, V. C. (1998). Language and Its Normal Processing. Sage Publications Inc. - Owens, R. E. (1996). Language Development: An Introduction. Allyn & Bacon. - Ingram, J. C. (2007). Neurolinguistics: An introduction to spoken language processing and its disorders. Cambridge University Press. - Fletcher, P., & Garman, M. (1986). Language Acquisition: Studies in First Language Development. Cambridge University Press. - Garman, M. (1990). Psycholinguistics. Cambridge University Press. - Ahlsen, E. (2006). Introduction to Neurolinguistics. John Benjamins Publishing company

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Clinicals - I**
Course Code	**SLP6131**
Academic Year	First
Semester	I
Number of Credits	6
Course Prerequisite	The student should have basic knowledge about objective speech analysis, Alternate and Augmentative communication and International Phonetic Alphabets
Course Synopsis	The module will provide the student the clinical knowledge in the assessment of speech and language disorders.
Learning outcome	At the end of the course, student shall be able to; Know the concept of speech synthesis, forensic speech analysis and perform acoustic, aerodynamic analysis of speech and AAC modes of communication

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To understand the concepts acoustic analysis of speech (C2, P1)
CO2	To demonstrate the use of aerodynamic instruments, IPA analysis and AAC system (C3, P5, A2)
CO3	To plan and execute the intervention program using AAC for children with language disorder (C6, P5, A2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2		x	x					
CO3		x				x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Know how:	a) To comprehend the procedure of acoustic analysis of speech including FFT, LPC, cepstrum and inverse filtering; acoustic analysis of vowels, diphthongs, plosives, nasals, fricatives, Affricates and other speech sounds using spectrograms on	**2 SGD** **4 Practical**

Content	Competencies	Number of Hours
	PRAAT (C2, P1)	
	b) To comprehend the procedure for speech synthesis (C2,P1)	**2 SGD**
Demonstrate	a) To demonstrate the knowledge of measurement of aerodynamic parameters using spirometer (C3, P5, A2)	**2 SGD**
	b) To perform the recording and interpretation of analysis of language samples using IPA analysis on 5 typically developing children and 5 children with language disorders, transcribe the samples (C3, P5, A2)	**5 SDL**
	c) To demonstrate the use of various AAC strategies (C3, P5)	**2 Practical**
	d) To demonstrate the use of finger spelling for signs for functional vocabulary (C3, P5)	**2 Practical**
	e) Demonstrate to operate AAC devices, aids and software (C3, P5)	**2 Practical**
Do	a) Plan and carry out intervention program for a child with language disorder using AAC (C6, P5, A2)	**2 SDL**

Learning Strategies, Contact Hours and Student Learning Time (SLT)	
Learning Strategies	**Contact Hours**
Small group discussion (SGD)	6
Self-directed learning (SDL)	7
Clinic	247
Practical	10
Total	**270**

Assessment Methods	
Formative	**Summative**
Practical record book	Clinical - Internal Viva
Assignment / Clinical test	

Mapping of Assessment with COs			
Nature of Assessment	**CO1**	**CO2**	**CO3**
Practical record book book submission	x	x	x
Class Test/Assignment	x	x	x
Internal viva	x	x	x
Feedback Process	Feedback after each assignment, Class Test & Viva		

SEMESTER - II

COURSE CODE		COURSE TITLE
SLP6201	:	Advances in Speech Sound Disorders
SLP6202	:	Voice : Science and Disorders
SLP6203	:	Disorders of Fluency
SLP6204	:	Language Disorders in Children
SLP6231	:	Clinicals - II

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Advances in Speech Sound Disorders**
Course Code	**SLP6201**
Academic Year	First
Semester	II
Number of Credits	4
Course Prerequisite	The student should have a basic knowledge in speech sound disorders
Course Synopsis	This course deals with recent advances in speech sound disorders with emphasis on its assessment and management.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To explain recent theories and concepts related to phonological development and its disorders (C2) and apply in evaluation and management of phonological disorders (C3)
CO2	To select appropriate assessment protocols for children with speech sound disorders (C4, P5)
CO3	To select appropriate management approaches for children with speech sound disorders (C4, P5)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2		x				x		
CO3		x				x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Phonological Development and Disorders	a) To explain the recent concepts in theories of phonological development: Generative phonology, natural phonology, non-linear phonology, optimality theory (C2) b) Application of phonological theories in evaluation and management of phonological disorders (C3) c) To explain Co-articulation – Types (anticipatory, carryover); Models of co-articulation - feature based, syllabic, allophonic, target, physiological and degree	**12**

Content	Competencies	Number of Hours
	of articulatory constriction models); Physiological / Acoustical / Perceptual studies in co-articulation (C2) d) To explain the current concepts in taxonomy of speech sound disorders in children (C2)	
Unit 2		
Assessment and Management of Children with Phonological Disorders	a) To select the appropriate comprehensive phonological assessment procedures – Formal and informal; Independent and relational analyses; dynamic assessment (C4, P5) b) To demonstrate understanding of the assessment of phonological awareness and phonological processing in children with speech sound disorders (C3) c) Critical appraisal of test material in Indian context - Specific issues in phonological assessment in multilingual environments (C2) d) To determine the need for intervention and intervention decisions (C3)	**12**
Unit 3		
Management of Children with Speech Sound Disorders	a) To select the appropriate evidence based approaches to intervention – Motor based approaches, linguistic based approaches; use of non-speech oro-motor activities (C4, P5) b) To infer the Motor learning principles – applications to interventions (C3) c) To explain the considerations in intervention: methods to measure clinical change and determining progress in therapy and generalization (C2) d) To explain the specific considerations in intervention within multilingual contexts (C2) e) To explain the use of software applications (Apps) in intervention; Use of tele-health for intervention of speech sound disorders (C2)	**12**
Unit 4		
Cleft Lip and Palate	a) To summarize the phonological development in children with CLP (C2) b) To summarize the development of other language attributes (morphology, semantics, syntax, pragmatics) (C2)	**12**

Content	Competencies	Number of Hours
	c) To explain the velopharyngeal Closure- normal physiology, parameters affecting velopharyngeal closure and nature of velopharyngeal dysfunction in persons with CLP (C2) d) To select the appropriate perceptual assessment protocols for speech characteristics in children with repaired CLP (C4, P5) e) To explain the Instrumental assessment of velopharyngeal closure- Imaging techniques, acoustic measurements, aerodynamic measurements (C2)	
Unit 5		
Management of Persons with CLP	a) To summarize the surgical, orthodontic and prosthodontic management in CLP (C2) b) To explain the early intervention for children with CLP – Methods and studies related to efficacy (C2) c) To select the appropriate Speech and language therapy approaches for persons with velopharyngeal dysfunction (C4, P5) d) To infer the current evidence based practices in assessment and management of CLP (C3)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminars/Tutorials/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**90**
Assessment Methods		
Formative	**Summative**	
Seminars/Assignments/Class test	End Semester Exam (Theory)	
Mid Semester/Sessional Exam (Theory)		
Mapping of Assessment with COs		

Nature of Assessment	CO1	CO2	CO3
Seminars/Assignments/Class test	x	x	x
Mid Semester Examination	x	x	
End Semester Exam	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main Reference	- Bernthal, J.E., Bankson, N.W., & Flipsen, P. (2013).Articulation and phonological disorders (7th Ed.).Boston, MA: Pearson. - Williams, A. L. (2003). Speech disorders: Resource guide for preschool children. Cengage Learning. - Lowe, R. J. (1994). Phonology: Assessment and intervention applications in speech pathology. Williams & Wilkins. - Kummer, A. W. (2013). Cleft palate & craniofacial anomalies: Effects on speech and resonance. Nelson Education. - Bernhardt, B. H., & Stemberger, J. P. (2000). Workbook in nonlinear phonology for clinical application. Austin, TX: Pro-ed. - Velleman, S. L (2003). Resource guide for Childhood Apraxia of Speech.Delmar/Thomson Learning. - Gordon-Brannan, M. E., & Weiss, C. E. (2007). Clinical management of articulatory and phonologic disorders. Lippincott Williams & Wilkins. - Dodd, B. (2013). Differential diagnosis and treatment of children with speech disorder (2nd Ed). NJ: Wiley. - Vasanta, D. (2014). Clinical applications of phonetics and phonology.ISHAMonograph.Vol 14, No. 1.Indian Speech & Hearing Association. - Williams, A., McLeod, S., & McCauley, R. (2010). Interventions for speech sound disorders in children. Baltimore: Brookes. - Journal articles

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Voice: Science and Disorders**
Course Code	**SLP6202**
Academic Year	First
Semester	II
Number of Credits	4
Course Prerequisite	The student should have basic knowledge in the Anatomy and Physiology of Voice production and voice disorders
Course Synopsis	The module will provide introduction to vocology, biomechanics of voice production, classification of voice disorders, assessment of voice disorders, rehabilitation methods applicable for different types of voice disorders and professional issues and service delivery.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Understand the bio-mechanics of voice production in normal individuals and in those with voice disorders (C4)
CO2	Explain and assess the roles of breathing mechanism, vocal fold vibration, vocal tract resonance and enunciation in voice production (C6, P4)
CO3	Delineate the varying roles and responsibilities of a SLP in a trans-disciplinary (medical) team to assess and treat voice disorders in children, adults, geriatrics and specific population including professional voice users (C3)
CO4	Appraise different service delivery models and procedures to run a voice clinic (C5)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2	x							
CO3		x			x			
CO4				x				x

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Voice science	a) To define Vocology; List its scope and objectives. (C1) b) To explain & illustrate the mechanism of breathing (lungs and airways, breathing	**12**

Content	Competencies	Number of Hours
	mechanism as an interactive sound generating system) and its relation to voicing; (C3) c) To explain & compare breathing oscillator & valving oscillator with reference to voicing (C4) d) To illustrate biology of vocal folds (vocal fold tissue & lamina propria) (C3) e) To explain the biomechanics of vocal folds (muscular properties & vocal behaviours voice control /modulation) (C2) f) To understand & explain the biomechanics of vocal fatigue, vocal injury, recovery & wound healing (C2) g) To define vocal resonance & Explain the concepts of acoustic impedance, reactance, inertance & compliance (C2) h) To describe acoustic impedance of the vocal tract and the effect of vocal tract reactance on self-sustained vocal fold oscillation, idealized vocal tract shapes and voice quality(C2) To relate modulating phonation with articulation & prosody (C3)	
Unit 2		
Voice assessment & Voice disorders	a) To explain the concept underlying vocometry (C2) b) To appraise the assessment of vocal ability, its principles, methods & procedures involved; (C6) c) To list & justify the tools of measurement & the purpose of measurement; (C2) d) To judge and measure the perceptual evaluation of voice (auditory perceptual evaluation- speech breathing, voice quality, resonance); (C6, P4) e) To examine the instrumentation for voice assessment (visualization techniques, acoustic analysis, aerodynamic analysis, glottography, nasometry and electromyography) (C4) f) Define & relate the incidence & prevalence of voice disorders. Describe occupational risks of voice disorders (C2) g) Classify voice disorders and describe the characteristics (C4) h) To illustrate & explain the pathophysiology of voice disorders (Structural, neuropathologic,	**12**

Content	Competencies	Number of Hours
	idiopathic, functional /behavioral pathologies related to mechanical stress, tissue elasticity, fluid transport, airway environment and abnormal muscle activation); (C3) i) To describe voice disorders in specific population: paediatric, aging, professionals, transgender and trans-sexual; (C2)	
Unit 3		
Voice Habilitation	a) To define Voice Team and explain its role and function (C2) b) To describe the pharmacological & surgical effects on voice: To discuss the current trend in medical & surgical management: List medications for bacterial & other infections, allergies, oedema, pain, asthma, cough, gastric & laryngopharyngeal reflux, stage fright, spasmodic dysphonia, mood conditions, sleep disturbance, hormone imbalances, etc. (C2) c) To understand the basics of surgical management : Define terminology; Describe preoperative & post-operative care & precautions ; (C2) d) To explain & compare the current views & approaches of voice habilitation; (C6) e) To understand & explain the concept of EBP for voice & its disorders; (C4) f) To choose and display voice therapy methods for children & adults; Voice exercise principles and procedures: Physiological voice therapy methods Vs. Behavioral voice therapy methods, role of vocal hygiene and voice rest, basics of exercise physiology, general principles, types of exercises, exercise prescription and progress, vocal exercise techniques – vocal function exercises, resonant voice exercise, confidential voice therapy, and other voice exercises including psychological approaches, relapse and restoration (C6,P4) g) Habilitation of persons with laryngectomy: Speech and medical considerations in laryngectomy, voice restoration in laryngectomees, counseling and quality of life (C3)	**12**

Content	Competencies	Number of Hours
Unit 4		
Voice Needs and Problems in Professional Voice Users	a) Classify and compare vocal professionals. Describe pathologies affecting voice – frequency, personal & social impacts, occupational hazards & issues, nature of voice problems: repetitive strain injuries, acute injuries & chronic problems – presentation, assessment & treatment (C4) b) Explain laryngeal rest, modified voice rest/conservative voice use, vocal hygiene; laryngeal rest versus exercise: effects on wound healing, general wound healing processes (C4) c) To explain voice habilitation for singers & other elite vocal users: Demands on voice, nature of vocal training & use, voice fatigue & assessment, basic principles of motor learning, awareness training & vocal exercises (C4) d) Illustrate the concept of professional voice care team – role of medical & on-medical team players (C3) e) Voice habilitation for teachers: List the voice problems in teachers: nature & manifestation, use of voice in classroom & factors influencing, vocal loading & assessment, vocal fatigue (C3) f) To describe techniques to improve the speaking voice & delivery, voice projection techniques, vocal education & counselling (C3)	**12**
Unit 5		
Service Delivery and Other Professional Issues	a) To understand the scope of practice in the area of voice; training in endoscopy, documentation, telepractice – discuss trends across globe & in India (practice guidelines, technical reports, position statements, knowledge & skills document relevant to voice as per RCI, ASHA, European Laryngologiocal Society, & other relevant professional/statutory body). (C2) b) Analyse the issues in adopting & implementing tele practice in India. (C4) c) To explain patient compliance & concordance to voice management. Describe the relevance of voice problems/voice problems as a public	**12**

Content	Competencies	Number of Hours
	health concern, Measuring severity of voice condition, measurement of compliance to management options, treatment variables and effects, patient-clinician interactions, socio cultural and economic considerations (C4) d) Voice clinics: To compare SLP led clinics Vs. SLP in a medical team; describe space & other infrastructure requirements; Specialty clinics: To consider needs of specific population such as singers, transgender, transsexuals, non-native speakers, broadcasters, etc. (C4) e) Recognize research & ethics in clinical practice: Give an overview of basic & applied research in voice, relevance of ethics in clinical research, informed consent, clinical trials (C2) f) Plan methods to popularize services-discuss roles of associations, conferences, working groups, awareness movements/drives like world voice day, camps, public awareness programs, role of media, prevention of voice problems. (C5)	

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminars / tutorials / Lectures	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**
Assessment Methods		
Formative	**Summative**	
Mid Semester/Sessional Exam (Theory)	End Semester Exam (Theory and/or practical)	
Seminars/Assignments/ Class test		

Mapping of Assessment with COs				
Nature of Assessment	CO1	CO2	CO3	CO4
Mid Semester	x	x		
Seminars/Assignments/ Class test	x	x	x	x
End Semester Exam	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main Reference	• Titze, I. R., & Verdolini Abbott, K. (2012).Vocology: The Science and Practice of Voice Habilitation. Salt Lake City: National Center for Voice and Speech • Sataloff, R. T. (2006). Vocal Health & Pedagogy: Advanced Assessment and Treatment. Vol. II. (2nd Ed.). San Diego: Plural publishers
Additional References	• American Speech-Language- Hearing Association. (2004b). Vocal tract visualization and imaging: Technical report. Available from www.asha.org/policy. • Behrman, A. (2013). Speech & Voice Science (2nd Ed.). San Diego: Plural publishers. • Hixon, T. J., Weismer, G., &Hoit, J. D. (2014). Preclinical Speech Science: Anatomy, Physiology, Acoustics, Perception (2nd Ed.). San Diego: Plural publishers. • Sapienza, C.M., & Ruddy, B. H. (2013).Voice Disorders. (2nd Ed.). San Diego: Plural publishers. • Sataloff, R. T. (2005). Voice Science. San Diego: Plural publishers. • Stemple, J. C., Glaze, L. E., & Gerdeman, B. K. (2014). Clinical Voice Pathology: Theory & Management (5th Ed.). San Diego: Plural publishers.

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Disorders of Fluency**
Course Code	**SPL6203**
Academic Year	First
Semester	II
Number of Credits	4
Course Prerequisite	The student should have basic knowledge about fluency disorders its assessment and management.
Course Synopsis	This course deals with recent advances in fluency and its disorders, the theories and models of stuttering, assessment and management strategies for fluency disorders.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Discuss the dimensions of fluency and supra-segmentals (C2), apply knowledge of development of fluency (C3), appraise theories and models of stuttering (C4), evaluate research output in the area of fluency and its disorders (C6)
CO2	Describe and explain various fluency disorders with an emphasis on each of the disorder's salient features, onset and course (C5)
CO3	Perform assessment of various fluency disorders and formulate the differential diagnosis (C5)
CO4	Prescribe and execute specific treatment plan for those with fluency disorders using evidence-based practice in decision making (C5)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2	x							
CO3		x	x					
CO4		x			x			

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Overview of Fluency and its Disorders	a) To discuss the dimensions of fluency disorders – recent advances and suprasegmentals (C2) b) Explain the development of fluent speech and factors affecting fluency of speech (C3)	**12**

Content	Competencies	Number of Hours
	c) To appraise the theories of stuttering – linguistic, articulatory, audiological, laryngeal and genetic predisposition (C4) d) Extend the knowledge of neuro anatomical, neuro-physiological bases of fluency disorders (C2) e) To explain the cortical activation patterns in stuttering – a neuromotor problem (C2) f) Explain stuttering as a timing disorder; feedback and feed-forward models of stuttering (C5)	
Unit 2		
Types of Non-fluencies and Dysfluencies	a) To compare and contrast normal non-fluency and developmental stuttering (C2) b) To analyze the causes and characteristics of cluttering (C4) c) To explain neurogenic, psychogenic and other types of fluency disorders (C5) d) To explain stuttering in persons with multiple disability (C5)	**12**
Unit 3		
Assessment of Fluency and Dysfluency	a) To demonstrate the assessment of fluency and its disorders using objective tools and analyze the findings (C4) b) To describe the subjective and perceptual assessment of stuttering and analyze the findings (C4) c) To explain the role of apply electrophysiology in the evaluation of fluency disorders (C2) d) To explain the role of functional radiological studies to understand stuttering (C5) e) To describe the cognitive dimension of stuttering (C2) f) To formulate a diagnosis and justify the differential diagnosis of fluency disorders (C5)	**12**
Unit 4		
Management of Disorders of Fluency	a) To explain spontaneous recovery and relapse of fluency disorders (C2) b) To discuss the principles of therapy and skill training (C2) c) To explain the different approaches in the management of fluency disorders in adults and children (C2) d) To develop a plan to conduct group therapy (C3) e) To compare the inputs from allied	**12**

Content	Competencies	Number of Hours
	professionals in the management of fluency disorders (C3) f) To explain behavioral and work-place management of stuttering (C2) g) To explain the need for counselling including parents and teachers (C2) h) To discuss social help and advocacy groups existing for the benefit of fluency disorders (C2) i) To explain apps and other innovative modes including telemode available for the management of fluency disorders (C5)	
Unit 5		
Management of fluency-related entities	a) To describe the relapse and recovery pattern in fluency disorders (C2) b) To explain efficacy and outcomes measures in fluency therapy (C5) c) To appraise the evidence-based practice in the management of fluency disorders (C5) d) To explain bilingualism / multilingualism relating to stuttering and cultural sensitivity (C5) e) To explain and integrate ethics in research and management of stuttering (C5)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminars / tutorials/Lectures	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**
Assessment Methods		

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3	CO4
Mid Semester examination	x	x		
Seminar/Assignments/Class test	x	x	x	x
End Semester Exam	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main Reference	• Guitar (2013). Stuttering- An integrated approach to its nature and treatment: 4th edition • Bloodstein, O., & Ratner, N. B. (2008). A Handbook on Stuttering (6th Ed.). Clifton Park, NY, Thomson Demer Learning. • Conture, E., Curlee, R., & Richard F., (2007). Stuttering and Related Disorders of Fluency. 3rd Ed. N Y, Thieme Publishers. • Curlee (1993): Stuttering and related disorders of fluency. Thieme Medical Publisher, New York. • Ham, R.E. (1990): Therapy of stuttering pre - school through adolescence. Prentice Hall, Englewood -Cliffs. • Manning, W. H. (2010). Clinical Decision Making in Fluency Disorders. 3rd Ed. NY, Delmer Language Learning • Ward (2006) – Stuttering and Cluttering – Frameworks for understanding and treatment • Journal articles
Additional References	• Conture (2001). Stuttering – Its Nature, Diagnosis and Treatment

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Language Disorders in Children**
Course Code	**SLP6204**
Academic Year	First
Semester	II
Number of Credits	4
Course Prerequisite	Students should have basic knowledge of typical language development, and the assessment and intervention for different language disorders in children.
Course Synopsis	In this course student will: 1. Critically evaluate the various theories of language acquisition. 2. Understand the nature and language acquisition of mono/bi/multilingual children. 3. Understand the various etiologies and comorbid conditions of language disorders in children. 4. Understand the nature and characteristics of Intellectual disabilities, Acquired language disorders, Specific Language Impairment, Autism Spectrum Disorders, and ADHD. 5. Understand the assessment and intervention approaches followed for ASD and ADHD. 6. Understand the various the developmental scales and tools for language development for Indian languages. 7. Understand the differential diagnosis, EBP, and Rights of children with disabilities.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Compare and contrast the various theories and models of language acquisition (C4).
CO2	Understand the nature and language acquisition of mono/bi/multilingual children (C2).
CO3	Know the various etiologies and comorbid conditions of language disorders in children (C2).
CO4	Describe the nature and characteristics of Intellectual disabilities, Acquired language disorders, and Specific Language Impairment (C2).
CO5	Describe the nature, characteristics, assessment and intervention of Autism Spectrum Disorders (C4).
CO6	Describe the nature, characteristics, assessment and intervention of Attention Deficit Hyperactivity Disorder (C4).

| CO7 | Compare and contrast the various the developmental scales and tools for language development for Indian languages (C4). |
| CO8 | Discuss the differential diagnosis, EBP, and Rights of children with disabilities (C4). |

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x					x		
CO2	x					x		
CO3	x	x						
CO4	x	x						
CO5					x	x		
CO6					x	x		
CO7		x				x		
CO8				x	x			

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Theories of Language Acquisition	a) Differentiate the theories of language acquisition- biological maturation, linguistic, cognitive, information processing and social theory (C4) b) Explain the implications of theories for assessment and intervention) (C2) b) Explain the types of bi / multilinguals; nature of bi/multilingualism in India (C2) c) Interpret the language acquisition in bilingual / multilingual / atypical children (C2) d) Explain the normal process of second language acquisition (C2) e) Explain the variables in second language acquisition: cognitive-linguistic and affective (C2)	12
Unit 2		
Classification of language abnormalities based on etiology	**Unit 2** a) Explain genetic and chromosomal abnormalities (C2) b) Describe motor and sensory deficits (C2) c) Explain Language disorders associated with pre-maturity and or high risky infancy (C2) d) Describe prenatal exposure to alcohol and other drugs (C2) e) Explain intellectual disabilities- causes,	12

Content	Competencies	Number of Hours
	prevalence, speech and language problems, cognitive deficits (C4) f) Describe acquired language disorders: causes, incidence and prevalence of acquired language disorders globally and in India (C2) g) Explain the defining characteristics - cognitive communication deficits (C2) h) Describe specific language impairment - causes, incidence and prevalence of primary language disorders/ specific globally and in India and defining characteristics (C2) i) Explain the differential diagnosis – cognitive- communication deficits (C2)	
Unit 3		
Autism Spectrum Disorders / Pervasive Developmental Disorders	a) Recall Introduction and classification (ICD10; DSM V) (C1) b) Explain etiology, warning signs, defining characteristics, incidence and prevalence of Autism – national and international (C2) c) Describe the symbolic abilities and social aspects of communication (C2) d) Describe and analyze the language outcomes in autism management – theoretical issues (C2, C4) e) Describe the theory of mind – second order representation (C2) g) Distinguish the diagnoses on the autism spectrum and associated disorders (C4) h) Describe and use norm-referenced and criterion referenced tools, checklists, and informal assessment tools for the assessment and diagnosis of autism spectrum disorders (C2, C3) used in India (ASIA, MISIC, INCELN tool etc.) and globally (C2, C3) g) Distinguish various treatment approaches – applied behavioral analysis, peer mediated interactions, floor time / developmental individual difference relationship based model, social communication, emotional regulations abilities and transactional supports, responsive teaching,	**12**

Content	Competencies	Number of Hours
	relationship development intervention, Hanen approach, Treatment and Education of Autistic and Related Communication Handicapped Children, Picture exchange communication system, Com-DEAL and diet management (C4) h) Explain the factors affecting prognosis (C2)	
Unit4		
Attention Deficit Hyperactivity Disorder	a) Recall the introduction and classification (ICD 10, DSM V) (C1) b) Explain the causes, incidence and prevalence of ADHD globally and in India (C2) c) Describe the characteristics of different types (C2) d) compare and contrast the relationship of ADHD to language and or learning disabilities (C4) e) Describe ADHD and the other labels, and adolescents with ADHD (C2) f) Describe and use norm-referenced and criterion referenced tools, checklists, and informal assessment tools for the assessment and diagnosis of ADHD used in India and globally (C2, C3) g) Distinguish the various treatments of ADHD, areas of treatment pertaining to communication deficits, academic issues, memory deficits, behavioral, medical, and social issues (C2)	**12**
Unit 5		
General Consideration in the Assessment and Management of Child Language Disorders	a) Distinguish the developmental scales and norm-referenced tools for language development for Indian languages (C4) b) Differentiate various child language disorders (C4) c) Demonstrate the general principles and approaches to management in child language disorders (C3) d) Plan for Evidence-Based Practice and Response-to-Intervention child language disorders (C3) e) Demonstrate team approach, guidance and counseling (C3) f) Explain the presence of comorbid features like swallowing / apraxia etc.	**12**

Content	Competencies	Number of Hours
	and their assessment (C2) g) Plan parent empowerment/ parent implemented intervention for language delay/disorders (C3) h) Plan an AAC in the management of child language disorders (C3) i) Summarize the Rights of children with language disability (C2)	

Learning Strategies, Contact Hours and Student Learning Time (SLT)

Learning Strategies	Contact Hours	Student Learning Time (SLT)
Seminar/Tutorial/Lecture	40	80
Small group discussion (SGD)	05	10
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8
Sessional Examination 1	x	x	x	x				
Assignments		x	x	x	x	x	x	x
End Semester Exam	x	x	x	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main reference **Additional reference**	Recommended Reading: • Bhatia, T. K. & Ritchie, W. C. (2014). Handbook of Bilingualism and Multilingualism.2nd Ed. East Sussex, Wiley Blackwell. • Gregg, N. (2009). Adolescence & Adults with Learning Disabilities and ADHD - Assessment and Accommodation. New York, Guilford Publications, Inc. • Hegde, M. N. (1996). A Course Book on Language Disorders in Children. San Diego, Singular Publishing Group. • Kaderavek, J. N. (2015). Language Disorders in Children: Fundamental Concepts of Assessment and Intervention. 2nd Ed. USA, Pearson Education Inc • Nelson, N. W. (1998). Childhood Language Disorders in Context: Infancy through Adolescence.2nd Ed.USA: Allyn& Bacon Inc. • Owens, J. R., Metz, D.E., & Farinella, K.A. (2011). Introduction to Communication Disorders - A Lifespan Evidence Based Perspective. Upper Saddle River; NJ, Pearson Education Inc.

Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Clinicals - II**
Course Code	**SLP6231**
Academic Year	First
Semester	II
Number of Credits	6
Course Prerequisite	The student should have basic knowledge of Acoustic analysis of Voice disorders, Speech and language disorders
Course Synopsis	The module will provide the student with the clinical knowledge of speech-language pathology
Learning outcome	At the end of the course, student shall be able to learn the clinical aspects of assessment and management of speech & language disorders in children

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To understand the concepts of physiological analysis of voice disorder and cleft palate disorder (C2, P1)
CO2	To demonstrate the acoustic analysis and use of speech therapy techniques (C3, P5, A2)
CO3	To perform the evaluation on patients and provide intervention program for speech and language disorders (C6 , P5, A2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2		x		x				
CO3		x				x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Know how	a) To describe the stroboscopic evaluation of persons with voice disorders as part of team assessment (C2,P1)	**1SGD**
	b) To describe the endoscopic examination of persons with cleft lip and palate as part of team assessment (C2,P1)	**1 SGD**
	c) To comprehend the differential diagnosis of conditions relevant to speech and hearing as per DSM-V and ICD 10 classifications	**1 SGD**

Content	Competencies	Number of Hours
	(C2,P1)	
Demonstrate	d) To perform the recording and interpretation of acoustic measures of voice on two samples and correlate with the perceptual analysis (C3,P5,A2)	**1 Practical**
	e) To make measurement of perceptual analysis of speech samples of persons with CLP. (C3,P5,A2)	**1 Practical**
	f) To demonstrate of therapy techniques for disorders of speech sound, voice, and fluency. (C3,P5, A2)	**1 Practical**
Do	g) To complete evaluation for five children with language disorders using appropriate tests/protocols: Autism Spectrum Disorders, Attention Deficit Hyperactivity Disorder (ADHD), cognitive impairment and global developmental delay. (C6,P5,A2)	**4 SDL**
	h) To complete evaluation for five persons with stuttering using standardized tests (SSI, SPI etc.), including assessment of rate of speech, type, percent of dysfluencies, and quality of life measures. (C6, P5, A2)	**4SDL**
	i) To complete evaluation for five persons with voice disorders including perceptual assessment using different scales, acoustic analysis of voice and patient reported outcome measurement. (C6,P5,A2)	**4SDL**
	j) To complete evaluation for five children with speech sound disorders – record and transcribe speech samples (word and connected speech), carry out error analysis – pattern analysis, calculate percentage consonant correct, mean length of utterance. (C6,P5,A2)	**2 SDL**
	k) To plan and carry out appropriate intervention program for children and adults with voice and fluency disorders, children with language disorders and children with speech sound disorders. (C6,P5,A2)	**3 SDL**

Learning Strategies, Contact Hours and Student Learning Time (SLT)			
Learning Strategies	**Contact Hours**		
Small group discussion (SGD)	3		
Self-directed learning (SDL)	17		
Clinic	247		
Practical	3		
Total	**270**		
Assessment Methods			
Formative	**Summative**		
Practical record book	Clinical - External viva		
Assignments / Clinical test			
Mapping of Assessment with COs			
Nature of Assessment	**CO1**	**CO2**	**CO3**
Practical record book book submission	x	x	x
Class Test	x	x	
Internal viva	x	x	x
End Semester External viva	x	x	x
Feedback Process	Feedback after class test, assignments and viva		

SEMESTER - III

COURSE CODE	: COURSE TITLE
SLP7101	: Neurogenic Speech Disorders
SLP7102	: Dysphagia
SLP7103	: Aphasia
SLP7104	: Cognitive Communication Disorders
SLP7131	: Clinicals- III

Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Neurogenic Speech Disorders**
Course Code	**SLP7101**
Academic Year	Second
Semester	III
Number of Credits	4
Course Prerequisite	The student should have basic knowledge of motor speech disorders in children and adults
Course Synopsis	The course will impart knowledge on recent advances in various neurogenic speech disorders with emphasis on its assessment and management.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To explain the neuroanatomical and neurophysiological bases of speech motor control (C2) and explain the models relevant to speech motor control (C2)
CO2	To select the procedures for assessment of the speech and non-speech aspects associated with neurogenic speech disorders in children and adults (C4, P5)
CO3	To select the specific treatment plan for children and adults with neurogenic speech disorders using evidence-based practice in decision making (C4, P5)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2		x				x		
CO3		x				x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Neuroanatomical and Physiological Substrates of Speech Motor Control	a) To explain the neuroanatomical substrates of speech motor control- motor and sensory cortex, subcortical, cerebellar and brain stem structures and their pathways; cranial nerves and peripheral nervous system, types of mechanoreceptors and their topography in speech (C2) b) To explain the Early models of speech motor control: Closed Loop, Open Loop, Associative Chain and Serial Order Model,	**12**

Content	Competencies	Number of Hours
	Schema Theory, Task Dynamic Model, Mackay's Model, Gracco's Model (C2) c) To interpret the Recent Models of Speech Motor Control: DIVA Model (C2) d) To explain the other speech control models related to development of speech motor control in children (C2) e) To explain the age related changes in speech motor control (C2)	
Unit 2		
Assessment and Management of Dysarthria in Adults	a) To select the appropriate assessment using perceptual methods: Rating scales and tests for speech parameters, prosody, speech intelligibility, comprehensibility and naturalness (C4, P5) b) To explain the recent advances in use of aerodynamic and acoustic analysis of speech among persons with dysarthria (C2) c) To explain the other physiological analyses of speech subsystems in persons with dysarthria (C2) d) To select the appropriate behavioural approaches for treatment of speech subsystems affected in persons with dysarthria (C4, P5) e) To infer the evidence based practice guidelines for management of dysarthria in adults (C4)	**12**
Unit 3		
Assessment and Management of Dysarthria in Children	a) To select the appropriate behavioral approaches to correct posture, tone, and strength and sensori-motor treatment techniques (C4, P5) b) To demonstrate the specific behavioral approaches in developmental dysarthria: McDonald's Approach and Hardy's Approach (C3) c) To explain the facilitatory approaches (neurodevelopmental approach and methods for reflex inhibition) in the management of developmental dysarthrias– evidence base for facilitatory approaches (C2)	**12**
Unit 4		
Assessment and Management of Apraxia of Speech	a) To select the appropriate assessment for suspected apraxia of speech, apraxia of speech and non-speech apraxia: Perceptual	**12**

Content	Competencies	Number of Hours
(AOS) in Adults	assessment protocols; physiological assessment of speech in adults with AOS (C4, P5) b) To explain the intervention methods for non-verbal apraxias (C2) c) To select the appropriate intervention approaches for AOS in adults: specific, programmed and nonspecific approaches – Evidence based practice (C4, P5) d) To infer the Motor learning principles – applications in intervention of AOS (C4)	
Unit 5		
Assessment and Management of Childhood Apraxia of Speech (CAS)	a) To explain the current status of nature of CAS as primary disorder and CAS as co-morbid condition in other neurodevelopmental disorders (C2) b) To select the appropriate assessment protocols for CAS and able to differentiate from other speech sound disorders (C4) c) To select the appropriate intervention approaches for CAS – Evidence based practice (C4, P5) d) To infer the Motor learning principles – applications in intervention of CAS (C4)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminars/Tutorials/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods	
Formative	**Summative**
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3
Mid Semester		x	x	
Seminars/Assignments/Class test	x	x	x
End Semester Exam	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main Reference	• Murdoch, B. E. (2010). Acquired Speech and Language Disorders: A Neuroanatomical and Functional Neurological Approach (2nd Ed.). New Delhi, India: John Wiley
	• Caruso. A. C., & Strand, E. A. (1999).Clinical Management of Motor Speech Disorders in Children. New York. Thieme.
	• Crary. M. A. (1993). Developmental Motor Speech Disorders. San Diego, Singular Publishing Group.
	• Maassen, B., Kent, R., Peters, H., Lieshout, P.V., & Hulstijn, W. (Eds.) (2009).Speech Motor Control in Normal and Disordered Speech. NY, Oxford University Press.
	• McNeil, M. R. (2008). Clinical Management of Sensorimotor Speech Disorders (2nd Ed.). New York, NY, Thieme.
	• Duffy, J. R. (2013). Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed.). University of Michigan, Elsevier Mosby.
	• Halpern, H., & Goldfarb, R. (2013). Language and Motor Speech Disorders in Adults (3rd Ed.). Chapters 8 and 9.MA, Jones &Barlett Learning.
	• Love. R. J. (2000). Childhood Motor Speech Disability (2nd Ed.). USA, Allyn& Bacon.
	• Journal articles
Additional References	• Manasco, M. H. (2014). Introduction to Neurogenic Communication Disorders.MA, Jones &Barlett Learning.
	• Weismer, G. (2007). Motor Speech Disorders: Essays for Ray Kent. San Diego, Plural Publishing Inc.
	• Yorkston, K. M., Beukelman, D. R., Strand, E. A., &Hakel, M. (2010). Management of Motor Speech Disorders in Children and Adults (3rd Ed.). Austin, Texas; Pro-Ed Inc.

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Dysphagia**
Course Code	**SLP7102**
Academic Year	Second
Semester	III
Number of Credits	4
Course Prerequisite	The student should have basic knowledge on anatomy and physiology of swallowing. Student should be familiar with the various phases of swallowing and related terminologies.
Course Synopsis	The module will provide information on the 1)Neuroanatomical and neurophysiology of normal and abnormal swallowing in children and adults 2) Appreciate the varying roles and responsibilities of a SLP in an interdisciplinary team to assess and treat swallowing disorders across the lifespan (neonates, infants, children, adults and geriatrics), 3) Appraise different service delivery models, and understand ethical, cultural and professional considerations in the management of dysphagia.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Describe neuroanatomy and neurophysiology of swallowing (C2)
CO2	Understanding the knowledge of aetiologies of dysphagia and relating it with the symptoms (C3)
CO3	Able to perform a clinical swallowing examination followed by instrumental evaluation of swallowing (C6)
CO4	Appraise the different service delivery models and apply Evidence based practice in dysphagia intervention (C6)
CO5	Understand ethical, cultural and professional considerations in the management of dysphagia (C5)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x	x						
CO2	x	x						
CO3					x			
CO4			x			x		
CO5				x	x			

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1: Neuroanatomical and Neurophysiological bases of Swallowing		
Structures and phases involved in swallowing & Etiological classification of swallowing	a) Summarise on the various structures and phases involved in swallowing (C2) b) Understand the peripheral nervous system control of mastication and swallowing (C2) c) Understand the central nervous system control for mastication and swallowing (C2) d) Classify and list the etiologies for dysphagia in adults (structural anomalies, neurological conditions, mechanical & motility) (C3) e) List the structural and physiological changes in eating & swallowing. (C3)	**12**
Unit 2: Assessment of Swallowing and its Disorders		
Clinical examination of swallowing: Visual examination, other instrumental evaluation of swallowing, Self report questionnaire; Non-oral options for nutrition intake	a) Outline the clinical assessment of swallowing (C3) b) Compare and contrast the various published protocols for clinical swallowing examination (C4) c) Explain the cervical auscultation for clinical examination. (C3) d) Understand the visual examination of swallowing and its disorders: modified barium swallow/ videofluroscopic study of swallow, flexible endoscopic examination of swallowing – team for conducting assessment, procedure and able to analyse the given VFSS and FEES videos interpret. (C6) e) Understand the rationale, and procedure of other instrumental evaluations (e.g., X Ray, Scintigraphy, Manometry, Transnasal-esophagoscopy, acoustic analysis of swallowing) (C2) f) Compare and contrast the Self-report questionnaires and quality of life assessment for dysphagia w.r.t. contents and the psychometric properties (C4) g) g) Appraise the differential diagnosis - oral vs. pharyngeal dysphagia (C5) h) h) Determine the prognostic variables and recommendations for oral/non-oral options for nutritional intake/ management. (C5)	**12**
Unit 3: Management of Dysphagia in Adults		
Behavioral and Medical management of	a) Formulating the behavioural management strategies (Compensatory & facilitatory strategies) in persons with dysphagia (C6)	**12**

Content	Competencies	Number of Hours
dysphagia; Management of mechanical dysphagia & Evidence based practice in dysphagia management	b) Understand the other behavioral management strategies (e.g., neuromuscular electrical stimulation) (C3) c) Identify the Pharmacological and surgical management of dysphagia*(C1) d) Appraise the Specific management strategies for mechanical causes of dysphagia (tracheostomy, glossectomy, mandibulectomy, oral/ pharyngeal cancer, trismus etc.) (C6) e) Understand the Evidence Based Practice (EBP) w.r.t levels of evidence, strengths and weaknesses for various intervention strategies (C5) f) Appraise the evidence base for various management approaches based on literature, (C4) g) Evaluation of patient progress and treatment efficacy - when to continue treatment, when to terminate and when referrals are appropriate) (C6)	
Unit 4: Pediatric Dysphagia		
Anatomical differences: Pediatric Vs Adults aerodigestive tract Clinical manifestations of dysphagia in children Clinical and instrumental evaluation of swallowing Approaches to safe swallow in children Swallowing therapist in NICU	a) Understand the anatomical differences in neonatal and pediatric upper aero digestive tract with reference to adults (C2) b) Summarize the Oral-motor and swallow development of infants and children (C2) c) Listing the clinical manifestations of feeding and swallowing difficulties in children (C1) d) Understand the motor and sensory issues in feeding/ swallowing among developmental conditions (Sensory based feeding disorders and special populations) (C2) e) Choose the specific considerations for clinical and instrumental evaluation of swallowing in children (C5) f) Construct Direct and indirect strategies to facilitate safe swallow in children (including motor and sensory issues) (C6) g) SLP in Neonatal Intensive Care Unit: - List the aetiology of feeding delay/disorders in neonates (C1) - Appraise the assessment of feeding and swallowing in neonates in relation to elderly children and adult (C5) - Formulate the management plan for feeding delay/disorders in neonates (C6)	**12**

Content	Competencies	Number of Hours
Unit 5: Service Delivery and Other Issues Related to Management		
Scope of practice in dysphagia; Practice guidelines in India; Role of SLPs in dysphagia clinics; Differential diagnosis in esophageal dysphagia; Ethical considerations	a) Illustrate the Scope of practice in the area of dysphagia: training in endoscopy, documentation, telepractice. (C3) b) Identify the Trends across the world and in India: Review of practice guidelines, technical reports, position statements, knowledge & skills document relevant to dysphagia in India and other countries - issues in adopting and implementing the same in India.(C3) c) Dysphagia clinics: Appraise the role of SLPs in SLP led clinics vs. SLP in a medical team; Outline the space and other infrastructural requirements within hospital setup, private clinics, schools and other centers. (C5) d) Esophageal dysphagia – List the etiologies, symptoms. Illustrate the Differential diagnosis and role of SLP in management (C2) e) Explain Ethical and cultural considerations in dysphagia management (C2)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods	
Formative	**Summative**
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3	CO4	CO5
Mid Semester / Sessional Examination 1	x	x	x		
Seminars/Assignments/Class test	x	x	x	x	x
End Semester Exam	x	x	x	x	x

Feedback Process:	Mid-Semester Feedback
	End-Semester Feedback
Main Reference	• Groher, M. E., &Crary, M. A. (2015).Dysphagia: clinical management in adults and children.Elsevier Health Sciences. • Logemann, J.A. (1998). Evaluation and treatment of swallowing disorders.Second Edition. Pro-Ed. Austin, Tx.

	• Fraker, C., &Walbert, L. (2003).Evaluation and treatment of pediatric feeding disorders: From NICU to childhood.Speech Dynamics.
Additional References	• Cichero, J. A., & Murdoch, B. E. (Eds.). (2006). Dysphagia: foundation, theory and practice. John Wiley & Sons. • Arvedson, J. C., & Brodsky, L. (2002).Pediatric Swallowing and Feeding: Assessment and Management. (2nd Edition). Canada, Cengage Learning. • Dysphagia Journal articles for recent advancements

	Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology	
Name of the Program	M.Sc. Speech-Language Pathology	
Course Title	**Aphasia**	
Course Code	**SLP7103**	
Academic Year	Second	
Semester	III	
Number of Credits	4	
Course Prerequisite	The student should have an introductory knowledge on aphasia and kindred disorders.	
Course Synopsis	The course will impart knowledge on recent advances in acquired aphasia and kindred disorders with an emphasis on its linguistic and neurological substrates, differential diagnosis, assessment and management.	

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To explain the neuroanatomical and neurophysiological bases of aphasia (C2) and explain the models relevant to language processing (C2)
CO2	To select the procedures for assessment of aphasia, alexia, agraphia (C3)
CO3	To select the specific treatment plan for aphasia in adults using evidence-based practice in decision making (C3)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2		x				x		
CO3		x				x		

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1: Neuroanatomical and Linguistic Substrates of Aphasia		
	a) To explain the neuroanatomical basis of major types of aphasias and kindred disorders (C2) b) To Classify aphasic syndromes (C4) c) To summarize Phonological aspects of aphasia: sound structure of language, the theoretical framework of speech production and perception (C2) d) To interpret Lexical deficits in aphasia including functional architecture of the lexical system and the internal structure of the functional components (C2) e) To explain Syntactic deficits in aphasia including models to understand normal and asyntactic sentence production and comprehension (C2)	**12**

Content	Competencies	Number of Hours
Unit 2: Assessment of Aphasia		
	a) To choose appropriate formal and informal assessment tools (both Indian and western) based on their logic, purpose, test constructs, rationale, scoring, procedures and interpretation. Do's and don'ts in assessment procedures (C3) b) To interpret the methods for studying language and the brain including neuroimaging and cortical potentials electroencephalography, magnetoencephalography, positron emission tomography, functional magnetic resonance imaging, N400 and T-complex (C2) c) To differentiate different types of aphasia (C4)	**12**
Unit 3: Spontaneous recovery in Aphasia		
	a) To explain the anagraphical, neurological and Speech Language therapy related factors and recovery in aphasia (C2) b) To interpret concepts of plasticity and recovery in aphasia (C2) c) To interpret the prognostic factors including structural, bio-chemical and physiologic mechanisms of recovery from aphasia (C2) d) To appraise the link between plasticity, behavior and therapy and to re-conceptualize aphasia therapy (C4) e) To explain the recovery pattern in monolingual, bi/multilingual aphasia (C2)	**12**
Unit 4: Disorders of Reading and Writing in Aphasia and Aphasia in Varied Population		
	a) To explain acquired disorders of reading: dual route models; connectionist models (C2) b) To summarize and outline the assessment and intervention of acquired reading disorders (C4) c) To classify the written language disorders (C2) d) To explain the neuroanatomical substrates of writing (C2) e) To summarize and outline the assessment and intervention of acquired writing disorders (C4) f) To describe aphasia in bilinguals/multilingual population (C2) g) To describe aphasia in illiterates, left handers and sign language users (C2)	**12**
Unit 5: Management of Persons with Aphasia		
	a) To review various language intervention strategies in aphasia and analyze their existing efficacy in literature. (C4) b) To design treatment plan for individuals with	**12**

Content	Competencies	Number of Hours
	Aphasia.(C3) b) To describe computer-based, AAC-based, and tele-rehabilitation strategies in aphasia (C2) c) To explain medical aspects of rehabilitation and rights of persons with aphasia (C2)	

Learning Strategies, Contact Hours and Student Learning Time (SLT):		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3
Mid Semester	x	x	
Assignments/Quiz	x	x	x
Seminar	x	x	x
End Semester Exam	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main Reference	• Ardila, A. (2010). A Proposed Reinterpretation and Reclassification of Aphasic Syndromes.Aphasiology, 24 (3), 363–394. • Chapey, R. (2008).Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders.Philadelphia, Lippincott Williams & Wilkins. • Davis, G.A. (2007). Aphasiology - Disorders and Clinical Practice. Boston. Pearson &Allyn& Bacon. • Papathanasiou, I. Coppens, P., &Potagas, C. (2013.). Aphasia and Related Neurogenic Communication Disorders.Burlington: Jones & Bartlett • Sarno, T.M (1998). Acquired Aphasia. San Diego: Academic Press.
Additional References	• https://www.annalsofian.org/showBackIssue.asp?issn=0972-2327;year=2020;volume=23;issue=8;month=September;supp=Y

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Cognitive Communication Disorders**
Course Code	**SLP7104**
Academic Year	Second
Semester	III
Number of Credits	4
Course Prerequisite	The student should have basic knowledge on the cognition.
Course Synopsis	This module will impart a comprehensive knowledge about various Cognitive Communication disorders with emphasis on its assessment and management.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To describe various conditions in adults leading to Cognitive Communication disorders (C2)
CO2	To apply the knowledge acquired skills in issues related to assessment of Cognitive Communication disorders (C4, P3)
CO3	To plan the acquired skills in management of Cognitive Communication disorders (C4, P3)
CO4	Critically evaluate research articles related to Cognitive Communication disorders (C6)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2	x	x						
CO3				x		x		
CO4			x	x				

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
An Overview of Cognitive Communication Disorders - Aphasia Related, Traumatic Brain Injury (TBI) and Right Hemisphere Damage (RHD)	a) Knowledge and understanding of Cognition- description of cognitive processes, mapping, mechanisms, concept, schema and properties (C1, C2) b) Understanding the Models of memory, cognitive-linguistics processes (C2)	**12**

Content	Competencies	Number of Hours
	c) Explain Cognitive communication disorders associated with TBI, disability following TBI- WHOICF classification, assessment and principles of cognitive rehabilitation of TBI (C2) d) Explain the nature, assessment and management of various cognitive communication deficits in RHD (C2)	
Unit 2		
Dementia and Related Cognitive Disorders	a) Understanding neuropathology in Alzheimer's Disease (AD, evaluation and intervention of cognitive communication disorders in AD and other dementias (C2) b) Understanding Cognitive communicative aspects in primary progressive aphasia (PPA), evaluation and management of PPA (C2) c) Identify the knowledge of Role of speech-language pathologist working with persons with dementia (C3)	**12**
Unit 3		
Alcohol Induced Language Disorders and Metabolic Disorders of Language	a) Understand the Cognitive communication deficits in alcohol induced and metabolic language disorders (C2) b) Assessment and management of body structure and function: quantifying and qualifying cognitive communication disorders of alcohol induced and metabolic disorders (C2, P3) c) Assessment of swallowing in persons with cognitive communication disorders (C4) d) Compare and Contrast cognitive communication disorders in adults (C4)	**12**
Unit4		
Physiology, Pathology and Cognitive Communication Changes in young ageing with Aging	a) Explain the Theories aging, and age related changes of the organ system, and cognition (C2) b) Explain the psychological- death and bereavement, personality development and quality of life (C2) c) Explain the physical changes and	**12**

Content	Competencies	Number of Hours
	performance- range of motion, strength, endurance praxis, performance work (C2) d) Explain aging speech- voice, resonance and articulation and swallowing(C2) e) Identify the factors involved in language and cognitive aging: primary, secondary and tertiary aging factors (C3)	
Unit 5		
Ethno-Cultural Dynamics in Cognitive Communication Disorders and cognitive Communication Approaches.	a) Application of Language as socio-cultural phenomena in aging (C3) b) Discuss the Role of supportive relationships in cognitive communication disorders (C6) c) Discuss Cognitive communication approaches in rehabilitation (C6) d) Discuss Role of AAC in the intervention of cognitive communication disorders (C6) e) Explain the role of team and partnerships in cognitive communication disorders (C5) f) Explain the Rights of persons with cognitive communication disorders (C5)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	40	80
Small group discussion (SGD)	05	10
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs

Nature of Assessment	CO1	CO2	CO3	CO4
Mid semester Examination	x	x	x	
Seminars/Assignments/Class test	x	x	x	x
End Semester Exam	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main reference	• Chapey, R. (2008). Language Intervention Strategies in Aphasia and Related Neurogenic Communication Disorders. Philadelphia, Lippincott Williams & Wilkins.
	• Chop, C. W &Robnett, H. R (2015.). Gerontology for health care professional.MA: Jones and Bartlett Learning Burlington.
	• Gazzaniga, S., Ivry, M. S., Mangun, R. B., & George, R. (2014). Cognitive Neuroscience: The Biology of the Mind. New York, W. W. Norton & Company Inc.
	• Laura, L. M., & Heather, M. C. (2006). Neurogenic Disorders of Language: Theory Driven Clinical Practice. New York, Thomson Delmar Learning.
	• Sarno, T.M (1998). Acquired Aphasia. San Diego, Academic Press.
	• Papathanasiou, P. Coppens, & C. Potagas (2013), Aphasia and Related Neurogenic Communication Disorders. Burlington, Jones & Bartlett.
	• Morris, J. C. (1994). Handbook of Dementic Illnesses. NY, Marcel Dekker Inc.
	• Murray, L.L. & Clark, M.H (2015). Neuro-genic Disorders of Language and cognition. Austin, Texas, Pro-Ed Inc.

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Clinical - III**
Course Code	**SLP7131**
Academic Year	Second
Semester	III
Number of Credits	6
Course Prerequisite	The student should have the basic knowledge in Neuro communication disorders and AAC
Course Synopsis	The module will provide information on the 1) Knowledge of the instrumental assessment procedures to dysphagia and communication problems 2) Differential diagnosis of adult language disorders and cognitive communication disorders. 3) Use of AAC for adults with communication disorders. 4) Evaluation and reporting while using the screening and diagnostic tools for assessment of neurogenic and cognitive communication disorders in adults. 5) Performing clinical swallow examination 6) Planning and performing intervention program for speech, communication and swallowing disorders.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	To understand the concepts of assessing dysphagia and neurogenic communication disorders using Instrumentation (C2, P1)
CO2	To demonstrate differential diagnosis and use of AAC system (C3, P5, A2)
CO3	Planning and performing assessment and intervention of neurogenic communication disorders and dysphagia (C6,P5, A2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2		x			x			
CO3		x				x		

Course Content and Outcomes:

Content	Competencies	Number of Hours		
Unit 1: Know how				
	a) Observation of modified barium swallow and/or flexible endoscopic examination of swallowing as part of team assessment (C2,P1) b) Observe and identify reports of persons with neurogenic communication disorders in tests such as EEG, CT Scan, MRI etc. (C2,P1) c) Reversible and irreversible conditions that cause neurogenic communication disorders. (C2,P1)	**P** **3** **1**	**SDL** **1** **1**	
Unit 2: Demonstrate				
	a) Demonstrate process of differential diagnosis for persons with adult language and cognitive communication disorders. (C3,P5) b) Use of AAC for adults with communication disorders (e.g., alphabet supplementation board, software applications) (C3,P5)	**3** **2**	**3** **2**	
Unit 3: Do				
	a) Complete evaluation, write detailed evaluation report, counsel persons with communication disorder and their families as required for the following: 1. Three persons with aphasia using appropriate screening, diagnostic (WAB/ BDAE etc.) and performance tool. (C6, P5, A2) 2. Bed side screening for five adults with communication disorders. (C6, P5, A2) 3. Three persons with adult cognition communication disorders using appropriate screening (ACE/MMSE/CLQT etc.), diagnostic (ABCD/CLAP etc.) and performance tool. (C6, P5, A2) 4. Clinical swallow examination for five persons with concerns in swallowing (C6, P5, A2) b) Plan and carry out intervention program for adults with neurogenic speech disorders, aphasia, cognitive communication disorders and dysphagia (C6, P5, A2)	**1** **1** **1**	**1** **1CBL** **1CBL**	

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Self-directed learning (SDL)	8	-
Case Based Learning (CBL)	2	-
Clinic	247	-
Practical	12	-
Assessment	1	-
Total	**270**	-

Assessment Methods	
Formative	**Summative**
Clinical practical book	Clinical – Internal viva
Assignments/Clinical test	

Mapping of Assessment with COs			
Nature of Assessment	**CO1**	**CO2**	**CO3**
Clinical practical book	x	x	x
Assignments/Clinical test	x	x	x
End Semester Exam/Clinical practical examination (Ext)	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

SEMESTER - IV

COURSE CODE	:	COURSE TITLE
SLP7201	:	Practices in Speech- language Pathology
SLP7202	:	Language and Literacy Disorders
SLP7251	:	Dissertation
SLP7231	:	Clinicals - IV

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Speech Language Pathology in Practice**
Course Code	**SLP7201**
Academic Year	Second
Semester	IV
Number of Credits	4
Course Prerequisite	The student should have basic knowledge about scope of practice and professional ethics in Speech Language Pathology practice.
Course Synopsis	This course deals with empowering the PG students with Practice, Laws, Regulations and Professional Ethics essential Speech-language Pathology, Service Delivery Models and Tele-practice in Speech-language Pathology. The course also introduces Specialized Programs in Speech-language Pathology and highlights certain aspects to be managed and adhered to in Speech-Language Pathology Practice.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Describe the role of an SLP in different set ups (C2)
CO2	Demonstrate and apply the knowledge of professional ethics, acts, laws, legislations and policy related to SLP practice (C3).
CO3	Expalin the need for specialised training programs in speech language pathology (C2)
CO4	Compare the different service delivery models in speech language pathology and propose measures to improve community practice in rural and urban areas (C4)
CO5	Explain the role of telepractice in speech language pathology and discuss the basic requirements for tele-practice and the challenges faced by SLPs in tele-practice (C6)
CO6	Evaluate and appraise the issues pertaining to autonomous practice and entrepreneurship in Speech language pathology practice and propose a design for SLP setup(C4)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x							
CO2				x				
CO3		x						
CO4				x		x		
CO5		x					x	
CO6			x					x

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Scope of Practice, Laws, Regulations and Professional Ethics	a) Compare the scope of SLP practice in global and Indian scenario (C2) b) Illustrate the knowledge of professional ethics (C2) c) Demonstrate and apply the knowledge of existing acts, legislations, policies related to persons with communication impairment (C3) d) Interpret the role of speech-language pathologists in the formulation of acts, regulations and policies (C2) e) Identify the advocacy groups, NGOs and their roles for persons with disability (C3) f) Demonstrate the knowledge of the rights of citizens (C2) g) Compare the National and international standards related to Speech-language pathology (C4)	**12**
Unit 2		
Specialized Programs in Speech-language Pathology	a) Explain the need for specialized programs in Speech-language pathology. (C2) b) Explain the role of SLP in assessing and managing Geriatric and persons with multiple handicaps (C2) c) Illustrate the scope and practices in medical speech language pathology (C2) d) Illustrate the scope and practice for SLPs in forensic speech science. (C2) e) Describe the present Health promotion, healthcare finances and disease prevention measures and policies for communication disorders and propose ways to upgrade them. (C2) f) Explain the status of current Disability-friendly environment including public education and propose measures and frameworks to improve them. (C2) g) Identify the importance of Culture and religion sensitive practice, Multilingual and multicultural sensitivity in speech-language practice. (C3) h) Explain the importance of early identification and prevention of communication disorders and discuss it can be implemented effectively in the society (C2)	**12**

Content	Competencies	Number of Hours
Unit 3		
Service Delivery Models in Speech-language Pathology	a) Describe Services provided by SLP in different medical / rehabilitation/ research /educational set ups. (C2) b) Compare and contrast between the School based services of SLP at regular versus special schools. (C4) c) Describe the Community based practice of SLPs in rural and urban areas (C2). d) Propose measures to improvise the services Community based practice of SLPs in rural and urban areas. (C6) e) Describe the Family empowerment programs and Home based delivery of SLP services. (C2)	**12**
Unit 4		
Tele-practice in Speech-language Pathology	a) Explain the role of information and communication technology in speech-language pathology practice (C2) b) Describe the Infrastructure for video-conferencing and tele-practice in Speech-language Pathology (C2) c) Appraise the techniques/ principles of remote testing for screening and diagnostic assessment for speech-language, intervention and counseling (C5) d) Discuss challenges and limitations of tele-practice in Speech-language Pathology in screening, assessment and evaluation, selection of aids and appliances, therapeutics and counseling and discuss how to improvise the limitations (C6)	**12**
Unit 5		
Issues in Speech-Language Pathology Practice	a) Appraise the issues pertaining to Autonomous practice and Entrepreneurship in speech-language pathology.(C4) b) Model one ideal autonomous SLP setup. (C3) c) Describe ethical issues to be considered in SLP practice (C2) d) Describe the significance of documentation in speech-language pathology practice with an emphasis on role of database management and storage. (C2) e) Describe the significance of evidence based practice and ICF framework for documentation / reports in SLP practice. (C2)	**12**

Content	Competencies	Number of Hours
	f) Describe the process of Quality control and auditing in speech-language pathology practice. (C2) g) Evaluate the relevance of interprofessional collaborative practice in SLP (C4) h) Describe the role of Information resources in speech-language pathology including books and journals, both electronic and print – Databases. (C2)	

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	40	80
Small group discussion (SGD)	5	10
Self-directed learning (SDL)	15	30
Total	**60**	**120**

Assessment Methods	
Formative	**Summative**
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Mapping of Assessment with COs						
Nature of Assessment	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
Mid Semester / Sessional Examination	x	x	x			
Seminars/Assignments/Class test	x	x	x	x	x	x
End Semester Exam	x	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback
Main Reference	• ASHA.2007. Scope of Practice in Speech-Language Pathology [Scope of Practice].Available at: http://www.asha.org/policy. • ASHA. 2009a. Audiology and Speech-Language Pathology Outside the United States. Available at: http://www.aasha.org/members/international/intl_assoc. ASHA.2009b. Telepractices for SLPs and Audiologists. Available at: http://www.asha.org/practice/telepracticeDavid L. Irwin (2007). Ethics for speech-language pathologists and audiologists : an illustrative casebook.
Additional References	• Rosemary Lubinski and Melanie W. Hudson. (2013), Professional Issues in Speech Language Pathology and Audiology 4th Edition • Sarah Ginsberg; Jennifer Friberg; Collenn F. Visconti (2011). Scholarship of Teaching and Learning in Speech-Language Pathology and Audiology

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Language and Literacy Disorders**
Course Code	**SLP7202**
Academic Year	Second
Semester	IV
Number of Credits	4
Course Prerequisite	The student should have basic understanding of language and literacy development in children
Course Synopsis	1. This course will introduce concepts related to literacy acquisition and disorders and their relationship with oral language development. 2. It will also highlight the differences among the writing systems and the foundational skills necessary for the development of reading in different orthographies. 3. It develops an understanding of language and literacy disorders with comprehensive methods of evaluation including both core and associated literacy domains. 4. Various evidence based Intervention approaches for Literacy development and issues related to service delivery will be discussed. 5. Additionally, the students will be made aware of Indian laws/policies relevant to education of children with special needs and about dyslexia associations/groups in India.

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Understands the relationships among language, literacy, and cognition and specific role of oral language in acquisition of literacy skills (C2)
CO2	Understands the differences among the writing systems and the foundational skills necessary for the development of reading in different orthographies (C2)
CO3	Comprehends the development and related disorders pertaining to language and literacy among children (C2)
CO4	Illustrates the clinical evaluation of language and literacy skills using evidence based assessment procedures (C4)
CO5	Plan the evidence based intervention for children with a focus on oral language based interventions (C4)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x					x		
CO2	x					x		
CO3		x					x	
CO4		x				x		
CO5		x	x					

Course Content and Outcomes

Content	Competencies	Number of Hours
Unit 1		
Development of reading and its relationship with Language	a) Explain the concepts related to reading and its acquisition such as decoding, reading accuracy, reading fluency, reading comprehension. (C2) b) Summarize the differences among writing systems for languages and discuss the importance of phoneme-grapheme correspondence in reading. (C2) c) Describe the foundations for development of reading in languages with different writing systems (Phonological processing, phonological awareness, orthographic skills, visual processing skills, oral language skills). (C2) d) Summarize the role of oral language in the acquisition of literacy. (C2) • Role of vocabulary and morphosyntax in decoding • Role of syntax and syntactic awareness in • Contribution of morphological awareness to spelling e) Describe the stages of reading and writing development from emergent literacy to proficient reading comprehension. (C2) f) Explain the models of reading development in English /alphabetic script and other writing systems. (C2)	12
Unit 2		
Disorders related language and literacy	a) Classify underachievement in school, learning disability, reading disability, dyslexia, dysgraphia, dyscalculalia, language learning disability, and language impairment/ specific language impairment. (C3) b) Explain DSM V and ICD 10 classification	12

Content	Competencies	Number of Hours
	system for literacy disorders with the challenges in use of classifications. (C2) c) Describe the linguistic characteristics of students with reading/language/learning disabilities. (C2) d) Discuss the issues related to co-morbidity and overlap among phonological disorders, specific language disorders, reading disability and auditory processing disorders with relation to development of reading. (C2) e) Discuss the genetic base of literacy disorders (family risk, molecular genetics etc.). (C2)	
Unit 3		
Assessment of language and literacy disorders	a) Examine the language screening procedures in school going children. (C3) b) Examine the standardized tests to assess language and (English and other languages) in children 5-18 years. (C3) c) Analyse the other forms of assessments to identify children with language/learning disabilities such as criterion referenced assessments, language sampling, portfolio, dynamic assessment, and curriculum-based assessment. (C4) d) Examine the specific assessment tools for learning disability in India (e.g., NIMHANS battery, Dyslexia Assessment for Languages in India and other published tests). (C4) e) Demonstrate the informal assessment of different domains – Tasks and stimuli in specific languages for phonological awareness, orthographic skills, phonological processing, oral language skills etc. (C3) f) Summarize assessment of associated areas (auditory processing, visual processing, memory etc.). (C2)	**12**
Unit 4		
Evidence based intervention for literacy development	a) Select the intervention approaches to promote emergent literacy skills. (C3) b) Demonstrate the intervention approaches to promote decoding and early reading skills. (C3) c) Illustrate the intervention approaches to promote development of reading comprehension. (C3) d) Examine the intervention approaches to promote spelling and written language output. (C3)	**12**

Content	Competencies	Number of Hours
	e) Summarize the research on cross-linguistics issues in intervention. (C2) f) Determine the intervention for children with Bilingual / multilingual background and reading intervention. (C5)	
Unit 5		
Issues related to service delivery and related laws/policies	a) Summarize the various modes of service delivery for school-aged children (clinical, consultative, collaborative, language-based classroom, peer-mediated) (C2) b) Summarizes the team members role in assessment and management of children with literacy disorders. (C2) c) Describe the response to intervention model with its tiers and its role in remedial instruction for poor readers. (C2) d) Justify the role of SLP in response to intervention. (C4) e) Summarize the acts, regulations and policies relevant to education and children with special needs in India (e.g., Right to Education Act, Sarva Siksha Abhiyan, regulations related to language exemption in examination, National Open School system). (C2) f) Identify the dyslexia associations/groups in India and discern their vision and mission. (C1)	**12**

Learning Strategies, Contact Hours and Student Learning Time (SLT)		
Learning Strategies	**Contact Hours**	**Student Learning Time (SLT)**
Seminar/Tutorial/Lecture	45	90
Self-directed learning (SDL)	15	30
Total	**60**	**120**
Assessment Methods		

Formative	Summative
Seminars/Assignments/Class test	End Semester Exam (Theory)
Mid Semester/Sessional Exam (Theory)	

Assignments

Nature of Assessment	CO1	CO2	CO3	CO4	CO5
Mid Semester / Sessional Examination	x	x	x		
Seminars/Assignments/Class test	x	x	x	x	x
End Semester Exam	x	x	x	x	x

Feedback Process	Mid-Semester Feedback
	End-Semester Feedback

Main reference	• C. A. Stone, E. R. Silliman, B. J. Ehren, & G. P. Wallach (Eds.), (2016). Handbook of language and literacy: Development and disorders (2nd ed.), pp. 339-357. New York, NY: Guilford Press • Clarke, P. J., Truelove, E., Hulme, C., &Snowling, M. J. (2013). Developing reading comprehension.John Wiley & Sons. • Paul, R. & Norbury, C. (2012). Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating (4th Ed.). St. Louis, MO: Elsevier. • Carroll, J. M., Bowyer-Crane, C., Duff, F. J., Hulme, C., &Snowing, M. J. (2011). Developing language and literacy: Effective intervention in the early years. John Wiley & Sons. • Turnbull, K. L. P., & Justice, L. M. (2011). Language development from theory to practice. Pearson Higher Ed. • Hulme, C., & Snowling, M. J. (2009). Developmental disorders of language learning and cognition. John Wiley & Sons. • Cabell, S. Q., Justice, L. M., Kaderavek, J., Pence, K. L., &Breit-Smith, A. (2008). Emergent literacy: Lessons for success. Plural Publishing.
Additional reference	• Justice, L. M. (2006). Clinical approaches to emergent literacy intervention. Plural Publishing. • Nag, S., & Snowing, M. J. (2012). School underachievement and specific learning difficulties. IACAPAP e-Textbook of Child and Adolescent Mental Health. Geneva: International Association for Children and Adolescent Psychiatry and Allied Professions.

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	Master of Science in Audiology
Course Title	**Dissertation**
Course Code	**SLP7251**
Academic Year	Second
Semester	IV
Number of Credits	9
Course Prerequisite	Basic knowledge in Research Methodology and Statistics
Course Synopsis	This project work is to introduce the student to carry out independent research under the guidance. This will enable them to understand the process and stages involved in preparing the research question, planning the study, executing the study and reporting the findings in the acceptable scientific format.

Course Outcomes (COs)
At the end of the course student shall be able to:

CO1	Complete the research project and organize information/data to reveal patterns/themes (C3, P4, A4)
CO2	Analyze and synthesis information/data to generate new knowledge/understanding (C5)
CO3	Demonstrate the ability to write publications aimed at peer review (P5, A4, C2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1				x		x		
CO2	x						x	
CO3					x	x		

Course Content and Outcomes

Content	Competencies / Activities	Number of Hours
A student should have completed all the previous steps of research such as topic selection, literature search, necessary IRC, IEC, CTRI approval.		
Data collection & coding the data	1. Initiating data collection (P5, A2) 2. Organizing the data by scoring and tabulating (C3)	195
Statistical analysis & interpretation	1. Analyze the data using appropriate statistical tools in consultation with the statistician (C4) 2. Interpret and discuss the result to generate new understanding of the data (C5)	

Content	Competencies / Activities	Number of Hours
Dissertation approval and drafts of publication	1. Prepare final draft of the chapters (Introduction, ROL, Method and Results and Discussion) for approval along with plagiarism report (C5) 2. Revise as per suggestions and make the final submission (C5) 3. Prepare a draft of publication for presentation to appropriate stakeholders and internal/peer review (C3, P2, A2)	

Learning Strategies, Contact Hours and Student Learning Time (SLT)			
Learning Strategies	**Contact Hours**		
Practical	405		
Total	405		
Assessment Methods			
Formative	**Summative**		
Research log book (Periodic assessment)	Final research proposal		
	Viva		
Mapping of Assessment with COs			
Nature of Assessment	CO1	CO2	CO3
Research log book	x		
Viva		x	x
Final research proposal	x	x	x
Feedback Process	Mid-Semester Feedback		
	End-Semester Feedback		
Additional reference	1. Stephen Polgar, Shane A. Thomas. (2011). Introduction to Research in the Health Sciences. Elsevier Health Sciences.		

Manipal College of Health Professions	
Name of the Department	Department of Speech and Hearing/Department of Audiology & Speech Language Pathology
Name of the Program	M.Sc. Speech-Language Pathology
Course Title	**Clinical - IV**
Course Code	**SLP7231**
Academic Year	Second
Semester	IV
Number of Credits	6
Course Prerequisite	The student should have basic knowledge about ethics, rights and privileges of disabled individuals and assessment tools used for communication disorders
Course Synopsis	The module will provide information on the 1) Knowledge of certification procedures and ethics in clinical practices and overview on rights and privileges of persons with communication disorders. 2) Use of assessment protocols and various diagnostic and screening tools for the assessment of learning disability, and phonological disorders. 3) Evaluation and reporting while using the screening and diagnostic tools for assessment of communication disorders in adults including medico legal cases. 4) Perceptual evaluation of speech subsystems in motor speech disorders

Course Outcomes (COs):
At the end of the course student shall be able to:

CO1	Knowledge on rights, privileges of persons with communication disorders and certification and ethical aspects in clinical practice. (C2,P1)
CO2	Able to use assessment protocols for LD and phonological disorders (C3,P4,A2)
CO3	Perceptual evaluation of speech subsystems in motor speech disorders (C6, P5,A2)

Mapping of Course Outcomes (COs) to Program Outcomes (POs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	x		x					
CO2		x			x			
CO3		x			x			

Course Content and Outcomes

Content	Competencies	Number of Hours	
Unit 1: Know how			
		P	**SDL**
	a. Certification procedures (C2 P1)	**1**	**2**
	b. Rights and privileges of persons with communication disorder (C2)	**1**	**2**
	c. Ethics in clinical practices (C2)	**1**	**1**
Unit 2: Demonstrate			
	a) Perform assessment of typically developing child using assessment protocols for learning disability (C4 P1)	**2**	**2**
	b) Perform assessment of phonological awareness, visuospatial skills, orthographic skills on typically developing children. (C4 P1)	**2**	**2**
Unit 3: Do			
	a) Complete evaluation, write detailed evaluation report, counsel persons with communication disorder and their families as required for the following: 1. Three children at risk for language learning disability (C4, P4 A2)	**1**	**1**
	2. Three persons with motor speech disorders including perceptual evaluation of speech subsystems, speech intelligibility assessment, instrumental assessments for respiration or phonology and quality of life assessment (C4 P5 A2)	**1**	**1**
	3. Prepare a report for persons with communication disorders for medico-legal purposes. (C4 P4 A1)	**1**	**CBL**

Learning Strategies, Contact Hours and Student Learning Time (SLT)	
Learning Strategies	**Contact Hours**
Self-directed learning (SDL)	11
Case Based Learning (CBL)	1
Clinic	247
Practical	10
Assessment	1
Total	**270**
Assessment Methods	
Formative	**Summative**
Clinical practical book	Clinical – External viva
Assignments/Clinical test	

Mapping of Assessment with COs			
Nature of Assessment	**CO1**	**CO2**	**CO3**
Clinical practical book	x	x	x
Assignments/Clinical test	x	x	x
End Semester Exam/Clinical practical examination (Ext)	x	x	x
Feedback Process	Mid-Semester Feedback		
	End-Semester Feedback		

7. Program Outcomes (POs) and Course Outcomes (COs) Mapping

Sem.	Course Code	Course Title	Credits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
I	ABS6101	Advanced Statistics and Research Methodology	4	CO1 CO2 CO3 CO4 CO5					CO2	CO4	
I	SLP6101	Speech Science and Speech Production	4	CO1 CO2 CO3 CO4 CO5	CO1 CO3 CO4 CO5	CO5		CO1 CO2	CO1	CO4 CO5	
I	SLP6102	Augmentative and Alternative Communication	4	CO1 CO2 CO3 CO4 CO5	CO2 CO3 CO4 CO5	CO3 CO4 CO5	CO3 CO4 CO5	CO5	CO3 CO5		
I	SLP6103	Neurobiology of Speech-language and Cognition	4	CO1 CO2 CO4 CO5	CO3	CO1 CO3 CO4		CO1 CO3	CO2 CO4 CO5 CO6	CO6	
I	SLP6105	Clinical Linguistics & Multilingual Issues	4	CO1 CO2 CO3 CO4 CO5 CO6	CO2 CO3 CO4 CO5 CO6	CO1 CO5			CO2 CO3 CO4 CO5 CO6 CO7	CO7	
I	SLP6131	Clinicals - I	6	CO1	CO2 CO3	CO1 CO2			CO3		
II	SLP6201	Advances in Speech Sound Disorders	4	CO1	CO2 CO3				CO2 CO3		
II	SLP6202	Voice : Science and Disorders	4	CO1 CO2	CO3	CO3 CO4	CO4	CO3		CO4	CO4
II	SLP6203	Disorders of Fluency	4	CO1 CO2	CO3 CO4	CO3		CO4			
II	SLP6204	Language Disorders in Children	4	CO1 CO2 CO3 CO4	CO3 CO4 CO7		CO8	CO5 CO6 CO8	CO1 CO2 CO5 CO6 CO7		
II	SLP6231	Clinicals -II	6	CO1	CO2 CO3	CO1CO					
III	SLP7101	Neurogenic Speech Disorders	4	CO1	CO2 CO3				CO2 CO3		
III	SLP7102	Dysphagia	4	CO1 CO2	CO1 CO2	CO4	CO5	CO3 CO4 CO5	CO4		

Sem.	Course Code	Course Title	Credits	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
III	**SLP7103**	Aphasia	4	CO1	CO2 CO3				CO2 CO3		
III	**SLP7104**	Cognitive Communication Disorders	4	CO1 CO2 CO3 CO4	CO2 CO3 CO4	CO3 CO4	CO3 CO4		CO3		
III	**SLP7131**	Clinicals -III	6	CO1	CO2 CO3	CO1		CO2	CO3		
IV	**SLP7201**	Practices in Speech-language Pathology	4	CO1	CO3 CO5	CO6	CO2 CO4		CO4	CO5	CO6
IV	**SLP7202**	Language and Literacy Disorders	4	CO1 CO2 CO3 CO4 CO5	CO4 CO5	CO4 CO5		CO4 CO5	CO4 CO5	CO1CO2 CO3 CO4 CO5	CO5
IV	**SLP7251**	Dissertation	9	CO2			CO1	CO3	CO1 CO3	CO2	
IV	**SLP7231**	Clinicals -IV	6	CO1	CO2 CO3	CO1		CO2	CO3		

8. MCHP PG PROGRAM REGULATION

1.   Program Structure

1.1.   The program offers a semester based credit system (with few programs offering specialization too).

1.2.   An academic year consists of two semesters – Odd semester (July - December) and Even semester (January – June)

1.3   Each semester shall extend over a minimum period of 13 weeks of academic delivery excluding examination days, semester breaks, declared holidays and non-academic events.

1.4   Medium of instruction shall be in English

2   Credit Distribution

2.1   Each semester has minimum 13 weeks of contact sessions. One credit = 13 hours. The credit distribution hours for Lecture/ Seminar, Tutorial, Practical, Clinics and Project are as follows:

Seminar (S)   :   1 Hour /week = 1 credit

Self-directed learning (SDL):   1 Hour /week = 1 credit

Clinics (CL)   :   3 Hours/week = 1 credit

Project Work (PW)   :   3 Hours/week = 1 credit

Note: MSc Audiology & MSc Speech Language Pathology program 1 credit = 15 hours (as per RCI regulation)

1.2   A semester has courses structured as theory, practical, and clinics. Each course is of minimum 2 credits. The maximum credits for theory course is 4; theory and practical combined is 5.

3   Attendance

3.1   Minimum attendance requirements for each course is:

i.   Theory   : 85 %

ii.   Clinics / Practical   : 90 %

3.1   As per the directives of MAHE, there will be no consideration for leave on medical grounds. The student will have to adjust the same in the minimum prescribed attendance.

3.2   Students requiring **leave** during the academic session should apply for the same through a formal application to the Head of Department through their respective Class In-charge/ Coordinator. The leave will be considered as absent and reflected in their attendance requirements.

3.3   No leverage will be given by the department for any attendance shortage.

3.4   Students, Parents/ guardians can access the attendance status online periodically. Separate intimation regarding attendance status would not be sent to parents/students.

3.5   Students having attendance shortage in any course (theory & practical) will not be permitted to appear for the End-semester exam (ESE) of the respective course.

4   Examination

4.1   Exams are in two forms – Sessional examination (conducted as a part of internal assessment) and End semester examination.

4.2   The final evaluation for each course shall be based on Internal Assessment Components (**IAC**) and the End-semester examinations **(ESE)** based on the weightage (as indicated in clause 5.1) given for respective courses.

4.3   IAC shall be done on the basis of a continuous evaluation after assessing the performance of the student in mid semester exam, class participation, assignments, seminars or any other component as applicable to a course.

4.4   All the ESE for the odd semesters **(regular ESE)** will be conducted in November-December. All the ESE for the even semesters **(regular ESE)** will be conducted in May-June.

4.5   For those whose failed to clear any course during regular ESE, a **supplementary/make up exam** is conducted 2 weeks immediately after the ESE result declaration to enable him / her to earn those lost credits. A nominal fee as per MAHE rules will be applicable during this examination.

4.6   For core courses, the duration of ESE for a 2 credit course would be 2 hours (50 marks) and for a course with 3 or more credits, 3 hours (100 marks). For program elective course, the exam duration is 2 hours (50 marks).

5. Weightage for Internal Assessment Component (IAC) and End Semester Exam (ESE)

5.1 Any one or a combination of marks distribution criteria applicable to a course.

IAC Weightage (%)	ESE Weightage (%)
20	80
30	70
50	50
100	Nil
Nil	100

6. Minimum Requirements for Pass

6.1. Pass in a course will be reflected as grades. No candidate shall be declared to have passed in any course unless he/she obtains not less than **"E" grade**

6.2. For all courses (core / non-core), candidate should obtain a minimum of 50% (ESE) to be declared as pass.

6.3 When a student appears for **supplementary examination**, the maximum grade awarded is "C" grade or below irrespective of their performance.

6.4. For students who fail to secure a minimum of 'E' grade for a course, an **improvement examination** is conducted to improve their IAC marks. The student can appear for these examination along with the subsequent batches' mid semester / sessional exams. The marks obtained in other components of IAC can be carried forward without reassessment. A nominal fee is charged as per MAHE for per course of improvement in IAC.

7. Calculation of GPA and CGPA

7.1. Evaluation and Grading (**Relative Grading**) of students shall be based on GPA (Grade Point Average) & CGPA (Cumulative Grade Point Average).

7.2. The overall performance of a student in each semester is indicated by the Grade Point Average (GPA). The overall performance of the student for the entire program is indicated by the Cumulative Grade Point Average (CGPA).

7.3. A ten (10) point grading system **(credit value)** is used for awarding a letter grade in each course.

Letter Grade	A+	A	B	C	D	E	F/I/DT
Grade points	10	9	8	7	6	5	0

DT – Detained/Attendance shortage, I – Incomplete

7.4 Calculation of GPA & CGPA: An example is provided

Course code	Course	Credits (a)	Grade obtained by the student	Credit value (b)	Grade Points (a x b)
AHS 101	Course - 1	4	B	8	32
AHS 103	Course - 2	4	B	8	32
AHS 105	Course - 3	3	A+	10	30
AHS 107	Course - 4	4	C	7	28
AHS 109	Course - 5	5	A	9	45
	TOTAL	20	-	-	167

1st Semester GPA = Total grade points / total credits

167/20 = **8.35**

Suppose in **2nd semester GPA = 7** with respective course credit 25

$$\text{Then, } \textbf{1st Year CGPA} = \frac{(8.35 \text{ x } 20) + (7 \text{ x } 25)}{20 + 25} = 7.6$$

8.   Progression Criteria to higher semesters

8.1 There is no separate criteria / credits required in order to be promoted to the next academic year.

8.3 However, in order to be eligible to appear for fourth semester (Theory / practical / project submission), the student should have cleared all his previous semesters (i.e. first, second and third).

8.4   The student must complete all the course work requirements by a **maximum of double the program duration**. For e.g. 2 years' program, all the academic course work needs to be completed within 4 years. Failure to do so will result in exit from the program.

9. Semester Break

9.1 Students will have a short semester break following their odd and even end-semester examinations.

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10. Project / Dissertation

10.1 Project / Dissertation will carry credits and marks (as applicable to each program)

10.2 Final copy of dissertation **(e-copy)** to be submitted by end of March for plagiarism check and submission to University. A **single hardcopy (student copy)** of the dissertation to be prepared and presented before the external examiner during the viva-voce.

10.3 **Manuscript** format of the thesis also to be submitted to the respective guides / dept.

11. Award of Degree

11.1 Degree is awarded only on **successful completion of entire coursework**.

Head of the Department   **Dean**

Deputy Registrar - Academics   **Registrar**