



HOLY CROSS COLLEGE (AUTONOMOUS)

Affiliated to Bharathidasan University

Nationally Accredited (3rd Cycle) with 'A' Grade by NAAC

College with Potential for Excellence.

Tiruchirapalli - 620002.

Department of Audiology and Speech Language Pathology

Programme: B.ASLP

PO No.	Programme Outcomes <i>Upon completion of the B.ASLP Degree Programme, the graduate will be able to</i>
PO-1	Function as audiologists and speech-language pathologists in different work settings
PO-2	Acquire practical knowledge to gather information and execute new techniques, protocols to excel in clinical skills.
PO-3	Understand concepts in speech, language, communication, hearing and incorporate it in Research activities
PO-4	Screen, evaluate, diagnose and assess the severity of different disorders related to speech, language, swallowing and hearing local, regional, national and international perspective
PO-5	Learn to liaise with professionals in allied fields and other stake holders

PSO No.	Programme Specific Outcomes <i>Upon completion of these courses the student would</i>
PSO-1	Manage speech, language, swallowing and hearing disorders across life span
PSO-2	Counsel persons with disorders of communication and their family members
PSO-3	Rehabilitate persons with speech, language, swallowing and hearing disorders
PSO-4	Assess and prevent speech, language, swallowing and hearing disorders
PSO-5	Undertake advocacy measures on behalf of and for persons with speech language and hearing disorders

B.ASLP COURSE PATTERN

I SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS1MCT01	B 1.1 Communication Sciences	4
2.	U17AS1MCT02	B1.2 Anatomy and Physiology of Speech and Hearing	4
3.	U17AS1MCT03	B1.3 Clinical Psychology	4
4.	U17AS1MCT04	B1.4 Linguistics and Phonetics	4
5.	U17AS1MCT05	B1.5 Electronics and Acoustics	4
6.	U17AS1MCT06	B1.6 Research Methods and Statistics	4
TOTAL			24

II SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS2MCT07	B2.1 Neurology	4
2.	U17AS2MCT08	B2.2 Otolaryngology	4
3.	U17AS2MCT09	B2.3 Speech-Language Pathology	4
4.	U17AS2MCT10	B2.4 Audiology	4
5.	U17AS2MCT41	Computer Fundamentals	4
6.	U17AS2MCP11	Practicals B2.5 Speech-Language Pathology - I	12
7.	U17AS2MCP12	Practicals B2.6 Audiology - I	12
TOTAL			44

III SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS3MCT13	B3.1 Voice and its Disorders	4
2.	U17AS3MCT14	B3.2 Speech Sound Disorders	4
3.	U17AS3MCT15	B3.3 Diagnostic Audiology: Behavioural Tests	4
4.	U17AS3MCT16	B.3.4 Amplification Devices	4
5.	U17AS3MCT42	Indian Constitution	4

6.	U17AS3MCP17	B3.5 Clinicals in Speech -Language Pathology - II	12
7.	U17AS3MCP18	B3.6 Clinicals in Audiology - II	12
TOTAL			44

IV SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS4MCT19	B.4.1 Motor Speech Disorders in Children	4
2.	U17AS4MCT20	B.4.2 Language Disorders in Children	4
3.	U17AS4MCT21	B.4.3 Diagnostic Audiology: Physiological Tests	4
4.	U17AS4MCT22	B.4.4 Implantable Hearing Devices	4
5.	U17AS4MCT43	Environment Studies	4
6.	U17AS4MCP23	B4.5 Clinicals in Speech -Language Pathology - III	12
7.	U17AS4MCP24	B4.6 Clinicals in Audiology - III	12
TOTAL			44

V SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS5MCT25	B5.1 Structural Anomalies and Speech Disorders	4
2.	U17AS5MCT26	B5.2 Fluency and its Disorders	4
3.	U17AS5MCT27	B5.3 Paediatric Audiology	4
4.	U17AS5MCT28	B5.4 Aural Rehabilitation in Children	4
5.	U17AS5MCP29	B5.5 Clinicals in Speech -Language Pathology - IV	12
6.	U17AS5MCP30	B5.6 Clinicals in Audiology - IV	12
TOTAL			40

VI SEMESTER

S.No	Code	Title of the Course	Teaching Hours per Week
1.	U17AS6MCT31	B6.1 Motor Speech Disorders in Adults	4
2.	U17AS6MCT32	B.6.2 Language Disorders in Adults	4
3.	U17AS6MCT33	B6.3 Aural Rehabilitation in Adults	4
4.	U17AS6MCT34	B.6.4 Audiology in Practice	4
5.	U17AS6MCP35	B.6.5 Clinicals in Speech -Language Pathology - V	12
6.	U17AS6MCP36	B6.6 Clinicals in Audiology - V	12

TOTAL			40
--------------	--	--	----

VII SEMESTER - INTERNSHIP POSTING

Internship

630 hours x 2 semesters

1260 hours

S.No	Code	Title of the Course
1.	U17AS7MCP37	B7.1 Clinicals in Speech -Language Pathology - VI

VIII SEMESTER - INTERNSHIP POSTING

S.No	Code	Title of the Course
1.	U17AS7 MCP38	B7.2 Clinicals in Audiology - VI

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B 1.1. Communication Sciences
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MCT01
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the, Basic concepts in speech, hearing, language and communication, Basic concepts of hearing sensitivity and acoustics

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand speech, language, communication and its normal development and analyze its functions
CO-2	Explain the bases of speech production
CO-3	Understand the concept of intensity, decibel and design its clinical application
CO-4	Summarize and organize the concepts of audibility and hearing
CO-5	Discuss the history and development of field of audiology and speech language pathology

UNIT I - Speech, Language and Communication

12hrs

Concept of speech, language and communication, Compare and contrast between speech, language and communication based on its similarities, dissimilarities and functions, Assessment of speech and language development, Identification of factors affecting speech and language development

Extra reading/ Key words: *overlaid function, speech chain, types of bilingualism, components of language*

UNIT II – Bases of Speech and Language

12hrs

Construction of speech production sub systems, Concept of acoustic theory, Speech production mechanism, Identification of different bases of speech production

Extra reading /Key words: *periodic and aperiodic sounds, G. Fant, acoustics of vowels and consonants*

UNIT III – Sound Intensity and Concept of Decibel

12hrs

Concept of absolute and relative units of sound intensity, Measurement and identification of sound intensity

Characteristics and application of decibels

Extra reading/ Key words: *Sound level meter, uses of SLM, weighting networks, calibration*

UNIT IV – Audibility And Hearing

12hrs

Differentiate between intensity and frequency, estimating the threshold of hearing through various methods, Differentiate between MAP and MAF, Assessment of sensation levels, threshold of pain and most comfortable levels

Extra reading /Key words: *missing 6 dB, son,phon, Fletcher Munson curve*

UNIT V – Introduction to Audiology and Speech Language Pathology

12hrs

Mapping the history of audiology and speech language pathology, Development of audiology and speech language pathology in India , Identification of branches of audiology

Extra reading /Key words: *instrumentation in audiology, scope of audiology*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Define the terms speech, language and communication and explain each of its components in detail	PSO 1 PSO 4	R, E
CO-2	Identify the pre requisites and factors affecting speech and language development	PSO 2 PSO 3	An, Ap
CO-3	Explain acoustic theory of speech production	PSO 4	R
CO-4	Recall the characteristics and applications of decibel	PSO 5	C
CO-5	Describe the terms Sensation levels, Threshold of pain, Most comfortable levels	PSO 2	An, Ap
CO-6	Bridges theory with practicals thereby aiding in skill development	PSO 5	U, C

References

Text Books:

1. SubbaRao, T A. (1992). *Manual for Developing Communication Skills*. NIMH. ISBN: 81-86594-03-03-
2. Martin, F. N., & Clark, J. G. (2014). *Introduction to Audiology (12 edition)*. Boston: Pearson.
3. Gelfand, S. A. (2009). *Hearing: An Introduction to Psychological and Physiological Acoustics (5 edition)*. London: CRC Press.
4. Webb, W. G., & Adler, R. K. (2008). *Neurology for the speech-language pathologist (5th ed.)*. St. Louis, Mo: Mosby/Elsevier

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B1.2 Anatomy and Physiology of Speech And Hearing
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MT02
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the Anatomy of the auditory system, Anatomy of the speech mechanism, Physiology of hearing mechanism, Functioning of speech and swallowing mechanism.

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand embryology of orofacial structures
CO-2	Explain the anatomy and physiology of speech production
CO-3	Understand the anatomy and physiology of ear
CO-4	Summarize and organize the physiology of hearing and balance
CO-5	Understand the anatomy and physiology of swallowing

UNIT I – Introduction

12hrs

General anatomical terms, Anatomical positions and planes of reference, Cells, tissues and muscles, Muscle connection and joints, Tissue – vascular and neural

Extra reading/ Key words: *overlaid function, speech chain, types of bilingualism, components of language*

UNIT II – Embryology

12hrs

Basic terminologies related to embryology, Development of external ear, middle ear, inner ear and auditory system, Embryonic anomalies affecting speech-language & hearing, Development of respiratory structures, larynx, facial regions and palate

Extra reading /Key words: *embryology, Embryology of cleft lip and palate, structural anomalies of ear and face*

UNIT III – Anatomy and Physiology of Speech Production Systems and Swallowing 12hrs

Mechanisms of breathing with emphasis on speech breathing, Supportive frame work of larynx, Anatomy of larynx, esophagus, resonatory and articulatory system, Brief mechanisms of swallowing and phonation, Contribution of articulatory and resonatory structures to speech production

Extra reading /Key words: *acoustic theory of speech production, mechanism of speech production, development of swallowing*

UNIT IV – Anatomy and Physiology of External and Middle Ear 12hrs

Anatomy of the external ear and middle ear, Physiology of external ear including localization, Head shadow effect, inter-aural intensity and time differences, Brief anatomy of temporal bone, Physiology of Eustachian tube, Middle ear transformer action, Physiology of middle ear muscles

Extra reading /Key words: *head shadow, body baffle, localization, transformer action, lateralization, anomalies of external and middle ear*

UNIT V – Anatomy and Physiology of Labyrinth 12hrs

Anatomy of bony and membranous labyrinth, Macro and micro anatomy of cochlea, Innervations and blood supply to cochlea, Overview of theories of hearing, Physiology of cochlea, Electrical potentials of the cochlea, Physiology of hearing through bone conduction, Overview to physiology of balancing mechanisms, Overview to anatomy of central auditory pathway, Overview to central auditory mechanism

Extra reading /Key words: *bone conduction, congenital anomalies of inner ear*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain different types of muscle tissues with relevant diagrams.	PSO – 1 PSO – 4	R, U
CO-2	Detail the anatomy of larynx with figures.	PSO – 1 PSO – 4 PSO – 2	R, U
CO-3	Explain the mechanism of swallowing.	PSO – 3 PSO – 4	Ap, R
CO-4	Analyse the contribution of articulatory mechanism to speech production?	PSO – 4 PSO – 5 PSO – 1	An, E
CO-5	Describe the development of ear and auditory system.	PSO – 2 PSO – 4 PSO – 5	R, U
CO-6	Make models related to anatomy and physiology aiding in skill development	PSO - 2	E, C

References

Text Books:

1. Seikel, J. A., King, D. W., & Drumright, D. G. (2010). *Anatomy & Physiology for Speech, Language, and Hearing (4th edition)*. Delmar, Cengage Learning, Division of Thomson Learning. NY.
2. Zemlin, W. R. (2010). *Speech and Hearing Science: Anatomy and Physiology: International Edition (4 edition.)*. Boston: Pearson.

Reference Books:

1. Chaurasia, B.D (2004). Human Anatomy, vol 3. Head Neck and Brain 4 th Eds, CBS Publishers and Distributors, New Delhi. ISBN 81-239-1157-2.
2. Kelley, M., Wu, D., & Fay, R. R. (Eds.). (2005). *Development of the Inner Ear (2005 edition.)*. New York: Springer.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B1.3. Clinical Psychology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MCT03
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the concept of psychology, assessment procedures and scope of psychology in speech and hearing.

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand scope of clinical psychology and its significance for speech and hearing
CO-2	Explain the cognitive, motor, emotional and social development
CO-3	Understand the theories of learning and therapy techniques based on learning principles
CO-4	Implement neuropsychology in the field of speech and hearing
CO-5	Remember and understand scope of clinical psychology and its significance for speech and hearing

UNIT I - Introduction to Psychology

12Hrs

Introduction to psychology: definition, history and schools of psychology, Scope of psychology, Meaning and definition of clinical psychology, Historical development, modern clinical psychology Significance of clinical psychology in health sciences, Role of clinical psychology in speech and hearing, Concept of normality and abnormality, Models of mental disorders: biological, psychological social models

Extra reading /Key words: *different school of psychology, application of psychology in speech therapy*

UNIT II - Assessment Procedures in Clinical Psychology

12Hrs

Methods in clinical psychology: case history, clinical interviewing, clinical observation, definition and types of psychological testing, Assessment of cognitive functions, Behavioural assessment, Classification of abnormal behavior, History, need & rationale of classification, Current classificatory system: DSM, ICD

Extra reading /Key words: *ICD 10, DSM V, ICF*

UNIT III - Developmental Psychology**12Hrs**

Child and developmental psychology: meaning, definition and scope, Meaning of growth, development & maturation, Principles of child development, Motor development: general principals of motor development, Stages in motor development: early motor development, motor development during later childhood and adolescence, decline with age, Cognitive development: growth from early childhood to adolescence, Piaget's theory of cognitive development, Emotional development and Social development

Extra reading /Key words: *theory of mind, importance of motor development in speech and language development.*

UNIT IV - Principles of Learning and Behavior Modification**12Hrs**

Learning: meaning, definition and characteristics, Theories of learning: introduction, Pavlov's classical conditioning: experiments and principles, Skinner's operant conditioning: experiments and principles, Therapeutic techniques based on learning principles, Skill behavior techniques, Problem behavior techniques

Extra reading /Key words: *learning, conditioning, classical, operant, skill, behavior, application of learning theories in speech and language therapy*

UNIT V - Neuropsychology and its Relevance to Study of Speech**12Hrs**

Neuropsychology: introduction and definition, Neuropsychological assessment and rehabilitation Application of neuropsychology in the field of speech and hearing, Counselling: introduction and definition, Types of counselling: directive and non- directive, Characteristics of a good counsellor

Extra reading /Key words: *importance of counseling, counseling tips for various speech and hearing disorders*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the role of clinical psychology in the field of speech and hearing.	PSO 2 PSO 5	U
CO-2	Understand methods of assessment in clinical psychology	PSO 4 PSO 3	R
CO-3	Detail the assessment of cognitive functions.	PSO 4 PSO 3 PSO 5	Ap, E
CO-4	Explain the stages in motor development till adulthood and counsel regarding it	PSO 2 PSO4	C
CO-5	Describe the characteristics of a good counsellor.	PSO 5 PSO 1	An, E
CO-6	Bridging theory with practical aspects of speech language pathology and audiology - skill development	PSO 5	Ap, C

References

Text Books:

1. Morgon C.T., King R.A., Robinson N.M. *Introduction to Psychology*. Tata McGraw Hill Publishing Co.
2. Anastasi, A. (1999). *Psychological testing*, London: Freeman
3. Baura, M (2004). *Human Development and Psychology*, Rehabilitation Council of India, New Delhi. ISBN: 81-7391-868-6
4. Coleman J.C. *Abnormal Psychology and Modern Life*, Taraporevala Sons & Co.

Reference Books:

1. Gregory, R.J. (2000). *Neuropsychological and geriatric assessment in Psychological Testing: History, Principles, and Applications (3rd ed.)*. New York: Allyn & Bacon.
2. Hurlock, E.B. (1981). *Child development*. (VI Ed.). Mc Graw Hill International Book Co.
3. Kline, P. (1993). *The Handbook of Psychological Testing*. Routledge
4. Lezak, M., Loring, D.W., and Hannay, H.J. (2004). *Neuropsychological Assessment. Fourth Edition*. New York: Oxford University Press
5. Siegal M.G. (Ed). (1987). *Psychological Testing from Early Childhood Through Adolescence*. International Universities Press.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B1.4 Linguistics and Phonetics
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MT04
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the branches of linguistics and phonetics and its scope in the field of speech and hearing.

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand different branches and aspects of linguistics and phonetics
CO-2	Explain the characteristics and functions of language
CO-3	Understand morphology, syntax, semantics, pragmatics
CO-4	Summarize acquisition of language and factors affecting it
CO-5	Define bilingualism and issues related to it

UNIT I - Linguistics

12Hrs

Introduction to linguistics and different branches of linguistics: applied linguistics, sociolinguistics, psycholinguistics, metalinguistics, neurolinguistics and clinical linguistics, Language characteristics and functions, difference between animal communication systems and human language, Morphology – concepts of morph, allomorph, morpheme, bound free and compound forms, roots etc. Processes of word formation, content and function words, Endocentric and exocentric constructions, form classes, grammatical categories, Inflection and derivation, paradigmatic and syntagmatic relationship, Principles and practices of morphemic analysis, Langue versus parole, Competence vs. performance

Extra reading /Key words: *dialect, creole, pidgin*

UNIT II – Phonetics and Phonology

12Hrs

Introduction to phonetics, Articulatory, acoustic, auditory and experimental phonetics – an introduction, Articulatory classification of sounds – segmental and supra-segmental, Classification description and recognition of vowels and consonants, Pathological aspects of speech sound production, Transcription systems with special emphasis on IPA. Transcription of samples of normal and disordered speech, Introduction to phonology, classification of speech sounds on the

basis of distinctive features and phonotactic, Application of distinctive feature theory to speech pathology and speech therapy, phonotactics, phonotactic patterns of English and Indian languages, Phonemic analysis – Principles and practices; their practical implications for speech pathologists, Common phonological processes - assimilation, dissimilation, metathesis, hapology, epenthesis, spoonerism, vowel harmony, nasalization, neutralization

Extra reading /Key words: *types of phonetics, distinctive feature analysis, phonotactics in Tamil and English*

UNIT III - Morphology, Syntax, Semantics and Applied Linguistics

12hrs

Morphology – concepts of morph, allomorph, morpheme, roots, compound forms - endocentric and exocentric constructions, free and bound morphemes, inflection and derivation, principles and practices of morphemic analysis **Syntax** – different methods of syntactic analysis IC analysis, phrase structure, grammar, transformational generative grammar, Introduction to the major types of transformations

Sentence types, notions about competence versus performance, Deep structure versus surface structure, Acceptability versus grammaticality language versus parole etc. A brief introduction to semantics – semantic feature theory, pragmatics, Processes of word formation, content and function words, form classes, grammatical categories, Syntax – concepts of phrases and clauses, sentence and its types, Different methods of syntactic analysis – Immediate constituent analysis, Phrase structure, grammar, transformational generative grammar– deep structure versus surface structure, acceptability versus grammaticality; Introduction to the major types of transformations, Usefulness of morphemic and syntactic analysis in planning speech and language therapy, A brief introduction to semantics, semantic relations, semantic feature theory, a brief introduction to pragmatics and discourse.

Extra reading /Key words: *competence and performance in language disorder, pragmatic disorder*

UNIT IV - Language Acquisition

12Hrs

Issues in first language acquisition, Pre-linguistic stages, linguistic stages, Acquisition of phonology, morphology, syntax, semantics, and pragmatics, Language and cognition, A brief introduction to theories and models of language acquisition, Biological maturation theory, linguistic theory, behavioral theory, information processing theory, social interaction theory, An integrated approach to theories communicative competence and its development, Applied linguistics with special reference to communication disorders, Usefulness of morphemic and syntactic analysis in planning speech and language therapy

Extra reading /Key words: *pre requisites, Nom Chomsky, LAD*

UNIT V - Bi/Multilingualism

12Hrs

Introduction to the language families of the world and India, Issues related to second language acquisition & factors influencing it, Inter-language theory, language transfer and linguistic interference, Differences between first and second language acquisition/learning, Bilingualism/Multilingualism, Metaphonology, Writing systems – types of writing, History of writing systems, Indian writing systems

Extra reading /Key words: *stages of second language acquisition, report writing,*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain different branches of linguistics.	PSO 4	R, U
CO-2	Describe the functions and characteristics of language?	PSO 2 PSO 4	R, An
CO-3	Detail phonetics and its types.	PSO 4 PSO 5	E, R, U
CO-4	Explain application of distinctive feature theory in speech pathology and speech therapy?	PSO 5 PSO 1	C, E, An
CO-5	Describe the factors affecting second language acquisition.	PSO 3 PSO 5	C, Ap, R, U
CO-6	Practical sessions on transcription which aids in assessment aiding skill development	PSO 4	Ap, An

References

Text Books:

1. Ball & Martin (1995). *Phonetics for speech pathology*. Delhi: AITBS Publishes, India.
2. Ball, Rahilly&Tench (1996). *The phonetic transcription of disordered speech*. San Diego: Singular Publishing Group Inc.
3. Clark and Yallop (1999). *An introduction to phonetics and phonology*. Oxford: Blackwell Publishes Inc.
4. Karanth, P (2003). *Cross-Linguistic study of Acquired Reading Disorders*. Sage Publications, New Delhi. ISBN : 0-306-48319-X

Reference Books:

3. Ladefoged, P. (1982). *A course in phonetics*. New York: Harcourt Brace Jovanorich Inc.
4. Shriberg& Kent (1982). *Clinical phonetics*. New York: John Wiley & Sons.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B1.5 Electronics and Acoustics
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MCT05
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand basics of electronics, acoustics and its application in speech and hearing.

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand concept of electronics and acoustics
CO-2	Explain the basics of digital signal processing
CO-3	Understand theoretical basis of acoustics required for audiologists
CO-4	Summarize functioning of computers and computing systems
CO-5	Remember and understand concept of electronics and acoustics

UNIT I - Electronic Components and Power Supply

12Hrs

Resistors, capacitors, inductors, Transformers and potentiometers, Semiconductor diodes and transistors

Light emitting devices, seven segment displays, Liquid crystal displays, Principles of operations and working of Field Effect Transistors, Uni-junction transistors and thyristors, Introduction to linear and digital integrated circuits, Block diagram of a DC power supply, Linear regulated power supplies, line regulation and load regulation, specifications of a DC power supply unit, Switched Mode Power Supply

AC power supply, stabilizers, Uninterrupted Power Supply, and inverters, Basic electronic concepts such as Polarity, Grounding

Extra reading /Key words: *DSP, electronic circuit in hearing aids, polarity and grounding in electrophysiological tests*

UNIT II - Introduction to Acoustics

12Hrs

Vibrations and their characteristics , Sound - generation and propagation, Characteristics of sound Amplitude, frequency and phase of pure tones, Amplitude, frequency and phase of complex tones (FFT and spectrum, relationship between time waveform, FFT and impulse response), Reflection and absorption, acoustic impedance, reverberation, Impedance and admittance, Electro-mechano-acoustic transformers

Extra reading /Key words: *application of impedance and admittance in audiology, rarefaction and condensation*

UNIT III - Acoustical Treatment, Transducers and Basics of Computers **12Hrs**

Introduction to audiometric rooms, Absorption coefficient, Sabine's formula, Materials for construction of audiometric rooms, Lighting, grounding and other miscellaneous issues related to audiometric rooms

Evaluation of efficiency of sound proofing in the audiometric rooms, Amplifiers, Microphones, loudspeakers - types and function, Fundamentals of digital electronics, binary number system, Hex code, bit, byte, logic gates, counters, flip-flops etc., Introduction to computers, Operating systems, hard ware, software, memory devices and other peripherals, care and preventive maintenance of computers

Extra reading /Key words: *ANSI standards of audiometric rooms, types of amplifiers in hearing aids*

UNIT IV - Digital Signal Processing **12Hrs**

Digital signal processing –introduction and need, Analog to digital converters, sampling and quantization, Fundamentals of digital filtering, Infinite impulse response and finite impulse response filters, Time domain methods of speech processing, Frequency domain methods of speech processing, Linear predictive analysis of speech signals, Digital coding of speech signals, Automatic speech recognition, Speech synthesis

Extra reading /Key words: *digital signal processing in hearing aids, digital hearing aids, analog hearing aids*

UNIT V - Instrumentation in Speech and Hearing **12Hrs**

Introduction to electronic instrumentation in speech and hearing, Electrodes, filters and preamplifiers Principle of operations, block diagram, calibration, maintenance and troubleshooting of audiometers, immittance meters, oto-acoustic emissions, hearing aids, evoked potential system, speech and voice analyses systems, artificial larynx, electroglottograph

Extra reading /Key words: *high tech AAC, text to speech devices*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Define resistors and capacitors	PSO 3 PSO 5	U
CO-2	Differentiate between LED and LCD.	PSO 3 PSO 5	R
CO-3	Explain DC power supply with a block diagram.	PSO 3 PSO 5	U, R
CO-4	Explain the characteristics of sound.	PSO 3 PSO 5	R
CO-5	Plan acoustics for an audiometric room	PSO 3	C

		PSO 5	
CO-6	Block diagrams to understand better functioning of different amplification devices aiding Skill development	PSO 2	U, Ap

References

Text Books:

1. Haughton, P., & Haughton, P. M. (2002). Acoustics for Audiologists (1st edition.). San Diego, Calif: Emerald Group Publishing Limited.
2. Moser, P. (2015). Electronics and Instrumentation for Audiologists. Psychology Press.
3. Moser, P. J. (2013). Electronics and Instrumentation for Audiologists. Psychology Press.

Reference Books:

1. Rout, N and Rajendran, S. (2014). Hearing aid trouble shooting and Maintenance, Published by National Institute for Empowerment of Persons with Multiple Disabilities, Chennai. Freely downloadable from <http://niepmd.tn.nic.in/publication.php>. ISBN 978-81-928032-1-0.
2. Speaks, C. E. (1999). Introduction To Sound: Acoustics for the Hearing and Speech Sciences (3edition.). San Diego: Cengage Learning.
3. Villchur, E. (1999). Acoustics for Audiologists (1 edition.). San Diego, Calif: Delmar Cengage Learning.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – I

Course Title	Major Core B1.6 Research Methods and Statistics
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS1MT06
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic concepts of research and statistics in the field of speech and hearing

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand concepts of research and statistics
CO-2	Apply the statistical methods and research designs in the field of speech and hearing
CO-3	Design and execution of research
CO-4	Discuss the ethical guidelines for conducting research
CO-5	Elaborate on Epidemiology

UNIT I - Introduction to Research Methods

12hrs

Meaning and purpose of research: meaning, Need for research in audiology and speech-language pathology, Funds/grants for research, Steps in research: identification, selection, Formulation of research questions: aims, objectives, statement of problem, hypothesis
Types of variables; types of sampling procedures (random and non-random); Types/ methods of data collection and their advantages and disadvantages, Reliability and validity (internal and external validity)

Extra reading /Key words: *methods of sampling, types of interview, types of questionnaires, types of data*

UNIT II – Research Design in Audiology and Speech-Language Pathology

12Hrs

Types of research: survey, ex-post facto research, normative research, standard-group comparison, Experimental and quasi experimental research: group design & single subject design
Internal and external validity of research, Between groups vs. repeated measures design,
Documentation of research: scientific report writing, different formats or styles (APA, AMA and MLA), Ethics of research

Extra reading /Key words: *experimental, non experimental, report writing in speech and hearing*

UNIT III - Introduction to Statistics and Data Collection**12hrs**

Application of statistics in the field of Audiology and speech-language pathology, Scales of measurement: nominal, ordinal, interval, ratio, Classification of data: class intervals, continuous and discrete measurement, Normal distribution: general properties of normal distribution, theory of probability, area under normal probability curve, Variants from the normal distribution: skewness and kurtosis, Measure of central tendency: mean, median, mode, Measures of variability: range, deviation (average and standard deviation), variance

Extra reading /Key words: *scales of measurement, data, normal distribution, variants, central tendency*

UNIT IV - Statistics and Research Designs**12hrs**

Choosing statistics for different research designs, Correlational techniques: Pearson's Product Moment Correlation Coefficient; Spearman's Rank order correlation coefficient, Statistical inference: concept of standard error and its use; the significance of statistical measures; testing the significance of difference between two means z-test, t-test; analysis of variance, post hoc tests, Non-parametric tests: Chi-square test, Wilcoxon test, Mann-Whitney U test, Reliability and validity of test scores: reliability and validity, Item analysis, Analysis of qualitative data, Software for statistical analysis

Extra reading /Key words: *correlation, inference, non parametric, reliability and validity*

UNIT V – Epidemiology**12hrs**

Basic epidemiologic concepts and principles, Epidemiologic data sources and measurements, Epidemiologic methods – questionnaire survey, screening, personal survey, testing, Media - their advantages and disadvantages, Incidence and prevalence of hearing, speech, language disorders as per different census (NSSO, WHO)

Extra reading / Key words: *epidemiology, methods, incidence and prevalence*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Summarise the importance to study research in the field of audiology and speech language pathology.	PSO 2 PSO 5	U, An
CO-2	Detail about the steps for a research design.	PSO 3 PSO 3	U, R, Ap
CO-3	Explain the ethics in research.	PSO 4	U, R, Ap
CO-4	Describe reliability and validity with its types .	PSO 5	U, R, Ap
CO-5	Detail the various epidemiologic methods.	PSO 2	U, R, E, Ap
CO-6	Training in SPSS statistical software aiding in research Skill development	PSO 5	E, C

References

Text Books:

1. Dane F. C. (2011). Sampling and Measurement. In Evaluating research: Methodology for people who need to read research. New Delhi: SAGE publication.
2. Field, A. (n.d.). Discovering Statistics Using IBM SPSS (4th ed.). SAGE Publications.
3. Hegde M. N. (2010). A course book on Scientific and professional writing for speech language pathology (4thEdition), Singapore: Delmar publication.
4. Hegde, M. N. (2003). Clinical research in communicative disorders: Principles and strategies. (3rd Edition), Austin: Pro-ed
5. Hesse-Biber, S. N. &Leavy, P. (2011). The Ethics of social research. In The Practice of qualitative research. (2nd Edition), New Delhi: SAGE publication.

Reference Books:

1. Jekel, F. J., Katz, L.D., & Elmore, G.J (2001). Basic Epidemiologic Concepts and Principles in epidemiology, Biostatistics, and Preventive Medicine (2nd Edition). Pennsylvian: Saunders
2. Meline, T. (2010). A research primer for communication sciences and disorders. Singapore: Pearson publication.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B 2.1. Neurology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCT14
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic concept of neurology related to speech and hearing

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand basic concepts
CO-2	Explain cerebral plasticity and dominance and its relevance for speech
CO-3	Understand various neural diseases
CO-4	Summarize and organize basic principles
CO-5	Remember and understand basic concepts

UNIT I: Anatomy and Physiology of the Nervous System **12Hrs**

General introduction to basic neurological concepts, Organization of the neural system, Central, peripheral and autonomic neural system, Neural structures - applied anatomy and physiology , Cranial nerves and those important for speech, language, hearing and balance, Cerebral blood supply, nourishment and protection of the brain, General principles of neural organization, Transmission of information in neural system – nerve fibers, synaptic transmission, action potential, chemical transmission, excitatory and inhibitory potential & neuromuscular transmission , Cerebral plasticity and development of neural plasticity and cerebral dominance

Extra reading/ Key words: *application of cerebral plasticity in speech and language intervention, circle of willis, watershed areas*

UNIT II: Neural Organization of Speech and Hearing Processes **12Hrs**

Neurosensory organization of speech and hearing, Central auditory nervous system, Anatomy of oral sensation and oral sensory receptors, Neuromotor control of speech, The pyramidal, extra-pyramidal system, basal ganglia and cerebellar system, Lower and upper motor neuron, Alpha and gamma motor neurons, Sensory and motor examination, oral, peripheral and other reflexes, Swallowing mechanism and neural control, Screening and bedside neurological examination

Extra reading/ Key words : *dysphagia, CAPD, tonotopic organization*

UNIT III: Neural Disorders Associated With Speech and Hearing Disorders – I **12Hrs**

Neural infections – meningitis, encephalitis, Developmental anomalies – spinal cord defects, syringomalacia and bulbia, Arnold chian malformations, Hydrocephalus – source and circulation of CSF, types and etiopathogenesis, UMN lesions –spastic dysarthria , LMN lesions –flaccid dysarthria, Mixed lesions, Extra pyramidal lesions – dyskinetic dysarthria, Cerebellum and cerebellar pathway lesions – ataxic dysarthria, Other diverse lesions and dysarthrias

Extra reading/ Key words : *spina bifida, congenital syndromes associated with nervous system development*

UNIT IV: Neural Disorders Associated with Speech and Hearing Disorders – II **12Hrs**

Cerebrovascular diseases – ischemic brain damage – hypoxic ischemic encephalopathy, cerebral infarction – intracranial hemorrhage – intracranial, subarachnoid , Trauma to the CNS – subdural hematoma, epidural hematoma, parenchymal brain damages, Demyelinating diseases – multiple sclerosis, perivenous encephalomyelitis, Dementia, Degenerative, metabolic and nutritional disorders – Alzheimer’s disease, Parkinsonism, Metabolic, hereditary, acquired, neuronal storage disorders, Wilson’s disease, Phenylketonuria, Nutritional – Wernicke’s encephalopathy, pellagra, Alcoholic cerebellar degeneration, Clinical-pathological methods and Neuro-imaging, Tumors of the CNS – gliomas, embryonal tumors of meninges, metastasis, malignant tumors

Extra reading/ Key words: *LSVT, ataxia, hypokinetic dysarthria, dementia*

UNIT V: SPEECH-LANGUAGE AND SWALLOWING DISORDERS **12Hrs**

Central language mechanism and its disorders, Developmental motor speech disorders – cerebral palsy, muscular dystrophy, Neurologic disorders with primitive reflexes, diagnosis and management, Clinical neurological syndromes associated with speech and language disorders, Childhood language disorders associated with neurologic disorders, Swallowing associated with neurogenic disorders and assessing mastication and deglutition, Agnosia and other conditions associated with speech and hearing disorders , Cognitive disorders associated with neurologic disorders, General management principles and options for childhood neurogenic speech, language and hearing disorders, General management principles and options for adult neurogenic speech, language and hearing disorders

Extra reading/ Key words : *swallowing maneuvers, reflex pathway, phases of swallow*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identification and evaluation of cranial nerve important for speech production	PSO 1 PSO 3 PSO 4	U, Ap, E
CO-2	Explain the importance of cerebral plasticity and dominance in the field of speech and hearing.	PSO 1 PSO 2 PSO 3	R, U

		PSO 5	
CO-3	Describe about the central auditory nervous system.	PSO 1 PSO 4 PSO 3	R, U
CO-4	Explain and evaluate the neural control for swallowing.	PSO 1 PSO 3 PSO 4	U, E
CO-5	Differentiate between LMN and UMN disorder symptoms.	PSO 1 PSO 3 PSO 4	R,U, Ap
CO-6	Describe different demyelinating conditions with its characteristics.	PSO 1 PSO 3 PSO 4	R, U, An
CO-7	Make models related to neurology of Speech and Hearing	PSO 2	U, C, Ap

References

Text Books:

1. Webb, W. G., & Adler, R. K. (2008). *Neurology for the speech-language pathologist (5th ed.)*. St. Louis, Mo: Mosby/Elsevier.
2. Duffy, J. R. (2013). *Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed.)*. University of Michigan, Elsevier Mosby.
3. Bhatnagar, S.C. (2012). *Neuroscience for the Study of Communicative Disorders*. Lippincott, Williams & Wilkins

Reference Books:

1. 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.
2. Adams, R.D. & Sidman, R.L. (1968). *Introduction to neuropathology*. New Jersey: McGraw-Hill.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B 2.2 Otolaryngology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCT08
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the disorders ear and throat.

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand causes, signs, symptoms, pathophysiology and management of diseases of external, middle and inner ear leading to hearing loss
CO-2	Explain causes, signs, symptoms, pathophysiology and management of diseases of laryngeal and articulatory systems

UNIT I – External and middle ear and their disorders **12Hrs**

Clinical anatomy of the ear ,Congenital anomalies,Diseases of the external ear ,Tumors of the external ear ,Perforation and ruptures of tympanic membrane ,Eustachian tube dysfunction ,Otitis media with effusion , Cholesteatoma and chronic suppurative otitis media ,Otosclerosis,Trauma to temporal bone Facial nerve and its disorder

Extra reading/ Key words: *Audiometric indications of each disorders discussed, management options for congenital anomalies of outer ear*

UNIT II – Inner ear and its disorders **12Hrs**

Congenital anomalies, Meniere’s Disorder, Ototoxicity, Presbycusis Disorders of vestibular system, Vestibular Schwannoma, Tinnitus and medical line of treatment, Pre-surgical medical and radiological evaluations for implantable hearing devices, Overview of surgical technique for restoration and preservation of hearing, Post-surgical care and complication of surgery for cochlear implants, Overview of surgical technique, post-surgical care and complication of surgeries for implantable bone conducted hearing aids and middle ear implant

Extra reading/ Key words: *audiometric findings each disorders discussed, therapeutic management of tinnitus*

UNIT III – Oral cavity and its disorders**12Hrs**

Anatomy of the oral cavity, Common disorders of the oral cavity, Tumors of the oral cavity, Cleft lip and palate – medical aspects, Clinical anatomy and physiology of pharynx, Inflammatory conditions of the pharynx, tonsils and adenoids, Tumors of the pharynx

Extra reading/ Key words : *oral cavity, tumors, cleft, glossectomy and mandibulectomy*

UNIT IV – Larynx and its disorders**12Hrs**

Clinical anatomy of larynx, Difference between adult and infant larynx, Clinical examination of larynx Stroboscopy – technique, procedure, interpretation and precautions, Congenital laryngeal pathologies Inflammatory conditions of the larynx, Vocal nodule and other disorders of the vocal folds, Benign and malignant tumours of the larynx, Laryngectomy – overview of surgical procedure, Phono surgery and other voice restoration surgeries

Extra reading/ Key words : *TEP, Esophageal speech and artificial larynx*

UNIT V – Esophagus and its disorders**12Hrs**

Clinical anatomy and physiology of esophagus, Clinical examination of esophagus, Congenital anomalies of esophagus, Esophageal fistula, Inflammatory conditions of esophagus, Benign conditions of esophagus, Malignant conditions of the esophagus, Airway management procedures

Extra reading/ Key words : *esophagus, swallowing, airway*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify the outer ear, middle ear and inner ear anomalies and plan its intervention strategies	PSO 1 PSO 3	R, Ap
CO-2	Describe the management options for tinnitus.	PSO 3	R,E, Ap
CO-3	Explain clinical anatomy and physiology of pharynx.	PSO 3 PSO 4	R,Ap
CO-4	Describe different congenital laryngeal pathologies and its management options	PSO 1 PSO 3	R,Ap
CO-5	Detail the anatomy and physiology of esophagus.	PSO 3 PSO 4	R,E, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Dhingra, P. L. (2013). *Diseases of Ear, Nose and Throat (Sixth edition)*. Elsevier.

Reference Books:

5. Chan, Y. and Goddard, J.C. (2015). *K J Lee's Essential otolaryngology: head and neck surgery*. (11th edition). New Delhi: Atlantic Publisher and Distributers
6. O'Neill, J.P. and Shah, J.P. (2016). *Self-assessment in otolaryngology*. Amsterdam: Elsevier
7. Postic, W.P., Cotton, R.T., Handler, S.D. (1997). *Ear trauma. Surgical Pediatric Otolaryngology*. New York: Thieme Medical Publisher Inc.
8. Wackym, A. and Snow, J.B. (2015). *Ballenger's otorhinolaryngology head and neck surgery*. (18th edition). United States: McGraw-Hill Medical

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B 2.3. Speech Language Pathology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCT09
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand different speech and language disorders, its basic assessment and management

Course Objectives:

CO No.	Course Objectives
CO-1	Remember and understand different speech and language disorders
CO-2	Execute basic assessment procedures for various speech and language disorders
CO-3	Understand basic principles and intervention procedures for speech and language disorders
CO-4	Summarize and organize basic principles of providing counseling and guidance to clients and caregivers
CO-5	Plan basic procedures in intervention

UNIT 1: Basic Concepts and Methods of Diagnostics

12hrs

Introduction to Speech Language Disorders , Definition and descriptions of delay, deviancy and disorders; impairment, disability and handicap , Incidence and prevalence of speech and language disorders ,Causes of speech and language disorders , Basic principles in assessment, evaluation and appraisal ,Tools for diagnosis- case history, interview, self-reports, questionnaire & observations
 Diagnostic models – SLPM, Wepman, Bloom and Lahey, Types of diagnoses – Clinical diagnosis, direct diagnosis, differential diagnosis, diagnosis by treatment, diagnosis by exclusion, team diagnosis, instrumental diagnosis, provocative diagnosis, tentative diagnosis advantage/disadvantages , Characteristics of a diagnostic clinician ,Organization and basic requirements for clinical set up and team approach ,DSM, ICD classification and ICF

Extra reading/ Key words: *speech and language disorders, causes, principles, models, diagnosis, good clinician*

UNIT 2: Basic Concepts and Methods of Therapeutics

12Hrs

Basic concepts and terminologies in speech therapeutics ,General principles of speech and language

therapy, Speech therapy set-up ,Individual and group therapy ,Procedures and types of for speech-language therapy

Approaches to speech and language therapy – formal, informal and eclectic approaches ,Planning for speech and language therapy – goals, steps, procedures and activities , Importance of reinforcement principles and strategies in speech and language therapy, types and schedules of rewards and punishment , Individual and group therapy ,AAC and other nonverbal methods of therapy

Extra reading/ Key words: *speech therapy, group therapy, approaches, reinforcements, AAC*

UNIT 3: Overview Of Basic Assessment and Management of Speech Disorders 12Hrs

Causes of speech disorders , Overview of assessment procedures for voice disorders; articulation and phonological disorders; and fluency disorders, Overview of management procedures for voice disorders; articulation and phonological disorders; and fluency disorders ,Early identification and prevention of speech disorders , Basic concepts in assessment and management of swallowing disorders

Extra reading/ Key words: *assessment, management, early identification, prevention*

UNIT 4: Overview of Basic Assessment and Management of Language Disorders

12Hrs

Types, Characteristics and classification of language disorders Causes of language disorders Overview of assessment procedures for child language disorders; adult language disorders; and neurogenic language disorders, Overview of management procedures for child language disorders; adult language disorders; and neurogenic language disorders ,Early identification and prevention of language disorders

Issues related to bi- /multilingualism

Extra reading/ Key words: *characteristics, classification, multilingualism, causes*

UNIT 5: Other Issues in Practice as a Speech – Language Pathologist

12hrs

Professional code of conduct – social, cultural and other ethical issues , Scope of practice –different set ups and prerequisites , Documentation of diagnostic, therapeutic and referral reports , Counselling, guidance, facilitation of parent participation and transfer of skills , Evaluation of therapy outcome and follow , Evidence based practice , Community based rehabilitation , Role of itinerant speech therapist, Anganwadis, resource teachers etc. ,PWD act, National Trust, Consumer protection Act, noise pollution Act and other public laws, RCI, ISHA and other organizations controlling the field , Facilities and concessions available for speech and hearing disabled

Extra reading/ Key words: *code of ethics, scope of practice, 30ounseling, CBR, evidence based practice, acts and laws*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	What are the characteristics of a diagnostic clinician?	PSO 4	R, Ap
CO-2	Explain different types of diagnosis with relevant	PSO 4	An, Ap

	examples.	PSO 5 PSO 2	
CO-3	Describe different approaches for managing language disorders in children	PSO 1 PSO 5	E, C, Ap, U
CO-4	Discuss the importance of early identification in speech and language disorders	PSO 2 PSO 1 PSO 5	U, R, An
CO-5	Detail PWD act	PSO 2 PSO 3	R
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Owens, Jr, Kimberly, A. Metz, F.E. (2014). 5th Ed. *Introduction to Communication Disorders: A life span based Perspective. Pearson Communication Science and Disorders Series.*
2. Hegde, M. N., & Davis, D. (2005). *Clinical methods and practicum in speech-language pathology (4th ed.)*. Australia; Clifton Park, NY: Thomson Delmar Learning.
3. Shipley, K. G., & Roseberry-McKibbin, C. (2006). Interviewing and counselling in communicative disorders : *Principles and procedures (3rd ed.)*. Austin, Tex: Pro-Ed.
5. Brookshire, R. H. (2003). *Introduction to neurogenic communication disorders (6th ed.)*. St. Louis, Mo: Mosby

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B 2.4. Audiology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCT10
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to carry out basic audiological assessment

Course Objectives:

CO No.	Course Objectives
CO-1	Understand and carryout experiments to measure differential sensitivity loudness and pitch
CO-2	Carry out case history and tuning fork test
CO-3	Evaluation of threshold using pure tone audiometry including masking on clinical population and appreciate the theoretical back ground of it
CO-4	Carryout different tests involved in speech audiometry appreciate the theoretical back ground
CO-5	Carryout subjective calibration and daily listening checks of the audiometer

UNIT I - Differential Sensitivity

12Hrs

Concept of differential sensitivity, just noticeable difference and Weber's fraction , Applications of jnd's in clinical evaluations, Magnitude estimation and production, Equal loudness level contours and its application

Extra reading/ Key words: *Temporal resolution tests, Fletcher Munson curve, mel*

UNIT II - Case history and Tuning Fork Tests

12Hrs

Administering case history, Case history interpretation, Differentiating adult and child case history, Execution tuning fork test and interpretation of results

Extra reading/ Key words: *false negative rinne, TORCH, ABC test*

UNIT III - Pure Tone Audiometry

12Hrs

Classification of audiometers, Concept of audiogram and symbols used, Threshold estimation using PTA, Identification of factors affecting BC and AC thresholds, Measurement of noise levels in audiometric rooms

Extra reading/ Key words: *sound level meter, weighting networks, mid frequency evaluation, audiometric configurations*

UNIT IV - Speech Audiometry**12Hrs**

Execution of speech audiometry, Identification of factors affecting speech audiometry, Familiarization of materials available in different languages, Execution of PIPB function, Procedure of BC speech audiometry

Extra reading/ Key words: *Spondee words, instrumentation for speech audiometry*

UNIT V - Clinical Masking And Instrumental Calibration**12Hrs**

Concept of interaural attenuation and identification of factors affecting, Carry out masking in clinical population, Familiarization of different procedures of masking, Carry out daily listening checks and familiarization of objective calibration

Extra reading/ Key words: *cross hearing, couplers, artificial ear, nauotons dilemma*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the procedure to interpret child vs adult case history and it's importance in management of hearing loss.	PSO 4 PSO 1 PSO 3	R, E, Ap
CO-2	Identify the type of hearing loss based on audiogram and counsel regarding the rehabilitative options available.	PSO 2 PSO 3	An, Ap
CO-3	Elaborate on the need and procedure for masking	PSO 4 PSO 2	R
CO-4	Generate a protocol to assess an individual with cochlear hearing loss	PSO 4 PSO 5	C
CO-5	Perform PI-PB function testing in an individual with retro cochlear pathology and counsel	PSO 1 PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References**Text Books:**

1. Gelfand, S. A. (2009). Hearing: An Introduction to Psychological and Physiological Acoustics (5 edition.). London: CRC Press.
2. Katz, J. (2014). Handbook of Clinical Audiology (7th International edition edition.). Lippincott Williams and Wilkins.
3. Martin, F. N., & Clark, J. G. (2014). Introduction to Audiology. Boston: Pearson.
4. Silman, S., & Silverman, C. A. (1997). Auditory Diagnosis: Principles and Applications (Reissue edition.). San Diego: Singular Publishing Group

Reference Books:

9. Durrant, J. D., & Feth, L. L. (2012). *Hearing Sciences: A Foundational Approach* (1 edition). Boston: Pearson.
10. Emanuel, D. C., & Letowski, T. (2008). *Hearing Science* (1 edition.). Philadelphia: Lippincott Williams and Wilkins.
11. Kaplan, H., Gladstone, V. S., & Lloyd, L. L. (1993). *Audiometric Interpretation: A Manual of Basic Audiometry* (2 edition.). Boston: Pearson.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B2.5 Practicals (Speech-language Pathology) - I
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP11
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to assess childhood speech and language disabilities.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Demonstrate normal aspects of speech
CO-2	Understand the developmental stages of speech and language behavior
CO-3	Demonstrate stress, rhythm and intonation and variations in rate of speech
CO-4	Analyse perceptually variations in prosody in different recorded samples of typical individuals at different age groups
CO-5	Perceptual analysis of speech and language parameters in children with speech and language disabilities

Practicals:

- Demonstrate normal aspects of speech and analyse perceptually variations in voice, articulation and fluency in different recorded speech samples of typical individuals at different age groups (children, adults and older adults) and sex.
- Demonstrate normal aspects of language and analyse perceptually variations in language in different recorded samples of typical individuals at different age groups (children, adults and older adults) and sex.
- Demonstrate stress, rhythm and intonation and variations in rate of speech and analyse perceptually variations in prosody in different recorded samples of typical individuals at different age groups (children, adults and older adults) and sex.
- Use IPA to transcribe spoken words.
- Record a standard passage, count number of syllables and words, identify syllable structure, syntactic structures in the passage.
- Oral mechanism examination on 5 normal children and 5 normal adults.
- Prepare a chart and show the developmental stages of speech and language behavior.

- Administer standardized tests for assessment of delayed speech and language development such as REEL, SECS, LAT, 3DLAT, ALD each on any 2 children.
- Study the available normative data (Indian/Western) of speech such as respiratory, phonatory, resonatory and articulatory parameters.
- Measure the following in 5 normal subjects: (a) Habitual frequency (b) Frequency range (c) Intensity (d) Intensity range (e) Phonation duration (f) rate of speech (g) Alternate Motion Rates and Sequential Motion Rates (h) s/z ratio.
- Study the available normative data (Indian/Western) of language such as phonology, semantics, syntax, morphology and pragmatic measures.
- Perceptual analysis of speech and language parameters in normal (2 children and 2 adults and persons with speech disorders (3 adults + 3 children).
- Prepare a model diagnostic report of a patient with speech and language disorder.
- Prepare a diagnostic and therapy kit.
- Make a list of speech language stimulation techniques and other therapy techniques for various speech disorders.
- Familiarize with the sources for referral and parent counseling procedures.
- Prepare a report on the available audiovisual material and printed material/pamphlets relating to speech-language pathology, public education of communication and hearing disorders, etc.
- Prepare a report on the available clinical facilities and clinical activities of the institute.

Clinical Practicum

- Observe the evaluation process and counselling of at least 5 different speech and language disorders in children.
- Observe the evaluation process and counselling of at least 5 different speech and language disorders in adults.
- Take case history of a minimum of 10 individuals (5 normal & 5 clients with complaints of speech-language problems).
- Observation of diagnostic procedures. Observe various therapeutic methods carried out with children and adults with speech and language disorders.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Transcribe speech using IPA	PSO 4	Ap
CO-2	Assess OPME for a child with speech and language disability	PSO 4	An
CO-3	Demonstrate speech and language stimulation techniques	PSO 3 PSO 1	R, Ap
CO-4	Prepare a list of available clinical facilities and activities of the institute	PSO 5	C
CO-5	Prepare a parent counseling format	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
First Year - Semester – II

Course Title	Major Core B2.6 Practicals (Audiology) - I
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP11
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to assess

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Calculate reference equivalent sound pressure levels (RETSPL) for head phones and bone vibrator
CO-2	Carry out clinical masking
CO-3	Perform daily listening checks and subjective calibrations
CO-4	Measure difference limen of intensity, frequency and duration
CO-5	Take case history

Practicals:

- Calculate reference equivalent sound pressure levels (RETSPL) for head phones and bone vibrator for any two frequencies using 30 participants.
- Measure most comfortable level on 10 participants with normal hearing sensitivity.
- Measure uncomfortable levels on 10 participants with normal hearing sensitivity.
- Calculate the sensation levels of MCL and UCLs in above 10 participants.
- Measure difference limen of intensity, frequency and duration on 10 normal hearing adults and plot it in graphical form and interpret the results.
- Measure equal loudness level contours at minimum level, 40 dB SPL, 70 dB SPL (1 kHz) in 5 normal hearing adults.
- Measure sone and mel in 5 normal hearing adults using scaling techniques.
- Take case history on 5 adults and 5 children with hearing problem and correlate the information from case history to results of pure tone audiometry.
- Administer different tuning fork tests on 5 simulated conductive and 5 sensori neural hearing loss individuals.
- Carry out pure tone and speech audiometry on 10 normal hearing individuals.
- Carry out clinical masking on 10 normal hearing individuals with simulated conductive hearing loss and carry out clinical masking on 5 individuals with conductive hearing

loss and 5 individuals with sensorineural hearing loss.

- Carryout daily listening checks and subjective calibrations 20 times and observe objective calibration once
- Perform otoscopy and draw the tympanic membrane of 10 healthy normal individuals

Clinical Practicum

- Observe case history being taken on 5 adults and 5 children with hearing problem and correlate the information from case history to results of pure tone audiometry.
- Administer different tuning fork tests on 5 conductive and 5 sensori neural hearing loss individuals.
- Observe the pure tone audiometry being carried out on 30 clients.
- Plot the audiogram, calculate the pure tone average and write the provisional diagnosis of observed clients.
- Perform otoscopy (under supervision) on at least 1 client with following conditions:
Tympanic membrane perforation, SOM, CSOM

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Carry out case history on an individual with hearing loss	PSO 2	Ap
CO-2	Perform otoscopy and write impression	PSO 5	An, Ap
CO-3	Perform daily listening check	PSO 4	R
CO-4	Calculate MCL, UCL, SL	PSO 4	C
CO-5	Carry out pure tone and speech audiometry	PSO 4	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B 3.1 Voice and its Disorders
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCT13
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of voice disorders

Course Objectives:

CO No.	Course Objectives
CO-1	Discuss characteristics of normal voice and identify voice disorders
CO-2	Explain etiology related to voice disorders and its pathophysiology
CO-3	Evaluation of different voice disorders
CO-4	Execution of voice therapy in individuals with various voice disorders
CO-5	Discuss the intervention techniques

UNIT 1: Basic Concepts in Voice and its Production

12Hrs

Identification of structures and functions of phonatory system, Concept of development of voice from birth to senescence, Familiarizing theories of phonation , Describing normal and abnormal voice

Extra reading/ Key words: *vocal registers, presbylarynx,*

UNIT 2: Characteristics and Pathophysiology of Voice Disorders

12Hrs

Classification of voice disorders, its incidence and prevalence , Identification of congenital, neurological and non organic voice disorders , Voice problems in systemic disorders, endocrine disorders, transgenders and elderly, Concept of voice problems in professional voice users

Extra reading/ Key words: *causes of voice disorders, laryngeal pathology, effect of hormonal changes in voice*

UNIT 3: Assessment of Voice

12Hrs

Assessment of clients with voice disorders using objective measures, Carry out perceptual voice evaluation

Reporting voice findings, Normative comparisons and differential diagnosis of voice disorders
Extra reading/ Key words: *PROM, DSI, High speed imaging techniques*

UNIT 4: Management of Voice

12Hrs

Selection of goals and approaches for voice disorders , Providing vocal hygiene and preventive counseling Differentiation of management procedures between childhood and adult language disorders , Concept of medical and surgical treatment for voice disorders , Professional voice care

Extra reading/ Key words :*vocal hygiene, symptomatic voice therapy, facilitation techniques*

UNIT 5: Intervention Strategies For Voice Disorders

12Hrs

Executing disorder specific intervention strategy, Post-operative care for benign vocal fold lesions disorders

Documenting voice therapy outcomes, Evaluation of therapy outcome and follow up

Extra reading/ Key words: *outcome measure, puberphonia, spasmodic dysphonia, functional aphonia*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Describe the laryngeal anatomy with relevant diagrams	PSO 1 PSO 4	R, E
CO-2	Explain development of voice from birth to senescence	PSO 2 PSO 3	An, Ap
CO-3	Illuminate on the various causes of voice disorders.	PSO 4	R
CO-4	Identify various visualization procedures for assessing voice disorders?	PSO 5	C
CO-5	Carry out voice therapy for different disorders.	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Stemple, J. C., Glaze, L. E., & Gerdeman, B. K. (2014). *Clinical voice pathology: Theory & Management (5th Ed.)*. San Diego: Plural publishers.
2. Aronson, A.E. & Bless, D. M. (2009). *Clinical Voice Disorders.(4th Ed.)*. New York: Thieme, Inc.
3. Boone, D. R., McFarlane, S. C, Von Berg, S. L. & Zraick, R, I. (2013): *The Voice and Voice Therapy. (9th Ed.)*. Englewood Cliffs, Prentice-Hall, Inc. New Jersey

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B 3.2. Speech Sound Disorders
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCT14
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to describe normal speech and language development, execute assessment and intervention of speech sound disorders

Course Objectives:

CO No.	Course Objectives
CO-1	Understand normal speech sound acquisition
CO-2	Explain characteristics of individuals with speech sound disorders
CO-3	Perform phonological analysis and assessment of speech sound disorders.
CO-4	Plan intervention for individuals with speech sound disorders.
CO-5	Understand normal speech sound acquisition

UNIT I: Speech Sound Acquisition And Development

12hrs

Concept of articulatory phonetics, Phonology and phonological theories, Methods to study speech sound acquisition , Acoustical analysis of speech sounds , Concept of coarticulation and its types

Extra reading/ Key words: *Linear and non linear phonology, spectrographic analysis, development of phonology*

UNIT II: Assessment of Speech Sound Disorders

12hrs

Concepts of terminologies and classification of speech sound disorders, Identification of factors related to speech sound disorders, Execution of speech sound sampling procedure, Administration of tests in English and other Indian languages , Transcription of speech samples

Extra reading/ Key words : *IPA, TAT, comprehensive assessment , Deep test of articulation in Tamil*

UNIT III: Assessment of Speech Sound Disorders – II

12hrs

Independent and relational analysis of speech sound disorders, Analysis of phonological process, Assessment of oral peripheral mechanism, Stimulability testing, Speech sound discrimination assessment, Speech intelligibility and speech severity assessment. , Documenting the assessment findings and determining the need for intervention.

Extra reading/ Key words: *SODA errors, speech intelligibility, pattern analysis, phonotactic inventory, Speech intelligibility rating scales, oral stereognosis*

UNIT IV: Management

12Hrs

Target selection and framing therapy sessions, Organizing therapy sessions for speech sound disorders, Measurement of therapy outcome, Facilitation of generalization, Use of technology in articulation correction

Extra reading/ Key words: *generalization, motor approaches, prognostic indicators*

UNIT V: Management – II

12Hrs

Selection and execution of cognitive linguistic approaches , Concept of general guidelines for linguistically-based approaches, Adapting intervention approaches to individuals from culturally and linguistically diverse backgrounds

Extra reading/ Key words: *Metaphon therapy, cycles approach, distinctive feature approach*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Understand theories of phonological development.	PSO 1 PSO 3 PSO 4	U
CO-2	Explain the stages of phonological development.	PSO 1 PSO 4	R, U
CO-3	Identify factors related to speech sound disorders	PSO 2 PSO 4 PSO 3 PSO 5	R, U, An
CO-4	Describe and assess the tests developed in India for speech sound assessment.	PSO 1 PSO 4	U, E
CO-5	Differentiate between independent and relational analysis.	PSO 1 PSO 4	R,U
CO-6	Explain different factors affecting target selection in planning intervention for speech sound disorders.	PSO 1 PSO 4	An
CO-7	Identify and perform the various cognitive linguistic approaches for speech sound disorders specific to clients	PSO 1 PSO 3	R, Ap, C
CO-8	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Bernthal, J.E., Bankson, N.W., &Flipsen, P. (2013). *Articulation and phonological disorders.(7th Ed.)*. Boston, MA: Pearson.
2. Velleman, S. L (2003). Resource guide for Childhood Apraxia of Speech.Delmar/Thomson Learning.

Reference Books:

1. Dodd, B. (2013). Differential diagnosis and treatment of children with speech disorder.(2nd Ed). NJ: Wiley.
2. Rout, N (Ed)., Gayathri, P., Keshree, N and Chowdhury, K (2015). Phonics and Phonological Processing to Develop Literacy and Articulation; A Novel Protocol. A publication by NIEPMED, Chennai. Freely downloadable from <http://niepmd.tn.nic.in/publication.php>. ISBN 978-81-928032-9-5
3. Vasanta, D. (2014). Clinical applications of phonetics and phonology. ISHA Monograph.Vol 14, No. 1.Indian Speech & Hearing Association.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B 3.3 Diagnostic audiology : Behavioral tests
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCT15
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to Execute a test battery approach for diagnosing various disorders

Understand the sensitivity and specificity of different tests before arriving at a diagnosis

Course Objectives:

CO No.	Course Objectives
CO-1	Choose individualized test battery for assessing cochlear pathology, retro cochlear pathology, functional hearing loss, CAPD, vestibular dysfunctions, tinnitus and hyperacusis
CO-2	Independently run the tests and interpret the results to identify the above conditions and also use the information for differential diagnosis
CO-3	Make adjustments in the test parameters to improve sensitivity and specificity of tests
CO-4	Make appropriate diagnosis based on the test results and suggest referrals

UNIT I - Introduction to diagnostic audiology

12Hrs

Understand the physiological basis of Recruitment and adaptation ,Analyze the characteristics of screening and diagnostic tests using the concept of sensitivity and specificity,Critiquing the clinical indications of various auditory disorders.

Extra reading/ Key words: *False positive, False negative, True positive, True negative*

UNIT II - Tests to identify cochlear and retro cochlear pathology

12Hrs

Organise appropriate test protocols for cochlear and retro cochlear pathology,Compare the outcome of tests for cochlear and retrocochlear pathology,Understand physiological basis of each tests.

Extra reading/ Key words: *Dead region of cochlea, Behavioral tests.*

UNIT III - Tests to diagnose functional hearing loss

12Hrs

Understand the behavioral and clinical indicators of functional hearing loss, Critiquing the test protocol between adult and child with functional hearing loss, Infer the test protocols for unilateral and bilateral functional hearing loss

Extra reading/ Key words : *signs and symptoms of functional hearing loss, pure tone and speech tests for functional hearing loss.*

UNIT IV - Assessment of central auditory processing 12Hrs

Understand different behavioral processes of central auditory processing disorder, Execute various tests to detect central auditory processing disorders, Classify the tests to assess brainstem and cortical lesion, Identify the variables influencing the assessment of central auditory processing

Extra reading/ Key words : *Bottle neck and subtlety principles, CAPD in Children.*

UNIT V - Assessment of persons with vestibular disorder, tinnitus, hyperacusis 12Hrs

Understand the anatomy and physiology of the vestibular system, Execute various behavioral tests to assess vestibular system, Understand the concept of tinnitus and hyperacusis, Implement different tests to assess tinnitus and hyperacusis

Extra reading/ Key words : *signs and symptoms of vestibular disorders, tinnitus and hyperacusis*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the need for a test battery approach	PSO 3	R, Ap
CO-2	Explain in details about different tests to assess retro cochlear pathology	PSO 3	R,E, Ap
CO-3	Elaborate on the signs and symptoms of functional hearing loss. Write down the tests to assess unilateral functional loss in children.	PSO 3 PSO 4	R,Ap
CO-4	Elaborate on the various behavioral process in the assessment of central auditory processing disorders. Add a note on bottle neck principle.	PSO 1	R,Ap
CO-5	Explain the anatomy and physiology of the vestibular system.	PSO 3 PSO 4	R,E, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Jerger, J. (1993). *Clinical Audiology: The Jerger Perspective*. Singular Publishing Group.
2. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology (6th revised North American edition)*. Philadelphia: Lippincott Williams and Wilkins.
3. Gelfand, S. A. (2009). *Essentials of Audiology*. Thieme
4. Martin, F. N., & Clark, J. G. (2014). *Introduction to Audiology (12 edition)*. Boston: Pearson.

Reference Books:

1. Martin, F.N (1994), *Introduction to Audiology*, New Jersey: Prentice Hall.
2. Rupp, Stockdell (1980). *Speech Protocols in Audiology*, New York: Grune & Stratton.
3. Keith, R.M. (Ed.). (1981). *Central Auditory Dysfunction*. New York: Grune & Stratton.
4. Musiek, and Baran, J.A. (1987). *Central Auditory Assessment: Thirty years of challenge and change*. *Ear and Hearing* 3, 225-355.
5. Pinherio, H.L. Kusiek, F.E. (Eds) (1985). *Assessment of Central Auditory Dysfunction Foundations and Correlates*. Baltimore: Williams and Wilkins.
6. Willsford J.A. (1987), *Handbook of Central Auditory Processing Disorders in Children*. Drando, Grune & Stratton.
7. Feldman, A.S., & Willber, L.A. (Eds), (1976), *Acoustic Impedance, Immittance: Measurement of Middle Ear Function*, Baltimore: Williams & Wilkins.
8. Popelka, B.R. (Ed) (1981). *Hearing Assessment with acoustic reflex*. New York: Grune and Stratton.
9. Jacobson, J.T. (Ed) (1985). *Auditory Brain Stem Response*. Taylor and Francis, London.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B 3.4. Amplification Devices
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCT16
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the criteria for selection of hearing aids for diverse population and the importance of programming with respect to various subjective and objective tests available to assess the benefits of hearing aids.

Course Objectives:

CO No.	Course Objectives
CO-1	Assess the candidacy for hearing aids and counsel accordingly
CO-2	Evaluate the listening needs and select the appropriate hearing aid
CO-3	Independently program digital hearing aids as per the listening needs of the client
CO-4	Assess the benefit from the hearing aid using subjective and objective methods
CO-5	Counsel the parents/care givers at all stages

UNIT 1: Types of Hearing Aids

12Hrs

Understanding the history of development of hearing aids, Classification and different types of hearing aids, Review of basic elements of hearing aids, Group amplification devices

Extra reading/ Key words: *Master hearing aids, ALD's*

UNIT 2: Technological Aspects in Hearing Aids

12Hrs

Understanding the signal processing techniques in hearing aids, Analyzing the signal enhancement strategies, Concept of compression and its use in hearing aids, Reviewing the recent advances in hearing aids

Extra reading/ Key words: *head shadow/baffle/diffraction effects*

UNIT 3: Electro-Acoustic Measurements for Hearing Aids

12Hrs

Analyzing the parameters to be considered for EAM, Maintenance and troubleshooting of hearing aids, Counselling and orienting the hearing aid user

Extra reading/ Key words: *BIS, IEC and ANSI standards*

UNIT 4: Selection of Hearing Aids**12Hrs**

Executing the programming of hearing aids, Inferring the importance of audiometric tests for hearing aid selection, Verification of hearing aid benefit through subjective and objective means, Identifying various pre-selection factors affecting hearing aid selection

Extra reading/ Key words: *feedback in hearing aids, assessing hearing aid benefits*

UNIT 5: Mechano-Acoustic Couplers (Ear Molds)**12Hrs**

Classifying different types of molds, Understanding special modifications in the ear molds
Procedure for hard molds and soft mold

Extra reading/ Key words: *UV curing methods, mechano-acoustic couplers*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Elaborate on the different types of hearing aids.	PSO 3	R
CO-2	Justify the importance of compression over peak clipping	PSO 4	E
CO-3	Explain the need for electro acoustic measurements and elaborate on different parameters measured	PSO 4	R
CO-4	Explain the pre-selection factors influencing the selection of hearing aid.	PSO 1 PSO 5	Ap, C
CO-5	Explain different special modifications of ear molds and counsel the importance of ear moulds	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References**Text Books:**

1. Kates, J. M. (2008). Digital Hearing Aids (1 edition). San Diego: Plural Publishing Inc.
2. Sandlin, R. E. (Ed.). (1993). Understanding Digitally Programmable Hearing AIDS. Boston: Allyn & Bacon.
3. Dillon. (2012). Hearing Aids (2 edition). Thieme Medical and Scientific Publisher.
4. Valente, M. (2002). Hearing Aids: Standards, Options, and Limitations. Thieme

Reference Books:

1. Hall, J. W., & Mueller, H. G. (1998). Audiologists' Desk Reference: Audiologic management, rehabilitation, and terminology. Singular Publishing Group.

2. Metz, M. J. (2014). Sandlin's Textbook of Hearing Aid Amplification: Technical and Clinical Considerations. Plural Publishing.
3. Mueller, H. G., Hawkins, D. B., & Northern, J. L. (1992). Probe Microphone Measurements: Hearing Aid Selection and Assessment. Singular Publishing Group.
4. Mueller, H. G., Ricketts, T. A., & Bentler, R. A. (2007). Modern Hearing Aids: Pre- fitting Testing and Selection Considerations: 1 (1 edition). San Diego, CA: Plural Publishing Inc.
5. Taylor, B., & Mueller, H. G. (2011). Fitting and Dispensing Hearing Aids (1 edition). San Diego: Plural Publishing Inc.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B 3.5 Clinicals in Speech Language Pathology - II
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCP17
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know the procedures available to obtain a speech language sample
CO-2	Know how to apply informal and formal assessment methods
CO-3	Demonstrate therapy techniques
CO-4	Perform OPME
CO-5	Document reports/recordings

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

Know-how: To evaluate speech and language components using informal assessment methods. To administer at least two standard tests for childhood language disorders. To administer at least two standard tests of articulation/ speech sounds. To assess speech intelligibility.

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

Do: Case history - minimum of 5 individuals with speech & language disorders. Oral peripheral examination - minimum of 5 individuals. Language evaluation report – minimum of

5. Speech sound evaluation report – minimum of 5.

Evaluation: Internal evaluation shall be based on attendance, clinical diary, log book and learning conference. External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Evaluate speech and language components using informal assessment methods	PSO 4	Ap
CO-2	Analysis of language components for Form, content & use	PSO 4	An
CO-3	Obtain case history for individuals with speech & language disorders	PSO 2 PSO 4	R, Ap
CO-4	Prepare a list of available clinical facilities and activities of the institute	PSO 5	C
CO-5	Prepare a parent counseling format	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – III

Course Title	Major Core B3.6 Clinicals in Audiology - II
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP18
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know the methods available to calibrate audiometer
CO-2	Know-how to obtain detailed case history from clients or parents/guardians
CO-3	Plot audiograms with different degree and type using appropriate symbols
CO-4	Do case history on individuals with hearing loss
CO-5	Calculate percentage of hearing loss

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

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

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

Do: Case history on at least 5 adults and 3 children with hearing disorders. Tuning fork test on at least 2 individuals with conductive and 2 individuals with sensori-neural hearing loss. Pure tone audiometry with appropriate masking on 5 individuals with conductive, 5 individuals SN hearing loss and 3 individuals with unilateral/asymmetric hearing loss – 5

Evaluation:

Internal evaluation: Shall be based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Calculate pure tone average, % of hearing loss, minimum and maximum masking levels	PSO 4	R, Ap
CO-2	Perform tuning fork tests	PSO 4	An, Ap
CO-3	Administer SRT and SIS	PSO 4	Ap
CO-4	Analyse the case history and arrive at a diagnosis	PSO 2	E, An
CO-5	Plan for Audiological test battery	PSO 5	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B.4.1. Motor Speech Disorders in Children
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS4MCT19
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of motor speech disorders

Course Objectives:

CO No.	Course Objectives
CO-1	Discuss the characteristics of motor speech disorders in children such as cerebral palsy, childhood apraxia of speech and other childhood dysarthrias
CO-2	Execute assessment of the speech and non-speech aspects associated with the above conditions
CO-3	Plan and execute therapy strategies for children with motor speech disorders
CO-4	Summarize brain structures involved in speech perception and production
CO-5	Explain Phases of swallowing

UNIT I - Neuro-Developmental Processes in Speech Production and Motor Speech Disorders
12Hrs

Concept of neuro anatomy and sensorimotor integration, Identification of dysarthria in children, Differentiating types of dysarthria, Identification of apraxia of speech in children

Extra reading/ Key words: *disorders of tone and movement, lower motor neuron, upper motor neuron, control circuits*

UNIT II – Assessment of Motor Speech Disorders in Children
12Hrs

Administration of case history and developmental neurological evaluation, Assessment of oral sensory and motor capacity, Assessment of speech sub-systems, Carry out speech assessment with specific reference to childhood apraxia of speech, Administration of test materials for developmental apraxia of speech, Concept of protocols for non-verbal and verbal praxis specific to Indian languages, Differential diagnosis of dysarthria and apraxia with other developmental disorders

Extra reading/ Key words :primitive and postural reflexes, cranial nerve examination, praxis, phonetic inventory, DPAIC, Differential diagnosis of apraxia with speech characteristics typical of dual or second language learners, DEMSS, MSAP

UNIT III - Management of Childhood Dysarthria

12Hrs

Team approach in rehabilitation of motor speech disorders in children, Carry out Neuro-developmental therapy, Management of drooling, Behavioral management of respiratory, phonatory, resonatory and articulatory subsystems, Prosthetic appliances in treatment of childhood dysarthria, Application of non speech oro motor exercises, AAC in management of motor speech disorders, Planning intervention for children with dysarthria

Extra reading/ Key words: Low tech and high tech AAC, oro motor exercises, multi disciplinary team, Talk tools and its applications, cultural and linguistic considerations in assessment

UNIT IV - Management of Childhood Apraxia of Speech

12Hrs

Concept of principles of motor learning, Executing intervention for apraxia of speech in children, Use of AAC in childhood apraxia of speech, Evidence-based practice in intervention for childhood apraxia of speech, Planning intervention for childhood apraxia of speech

Extra reading/ Key words: Integral stimulation, Multisensory and tactile cueing techniques, Gestural cueing techniques melodic intonation therapy, multiple phonemic approach, & instrumental feedback, phonological remedial approaches, response to intervention system (RTI), context specific communication boards, Kaufman Speech to Language Protocol, Nuffield Dyspraxia Program

UNIT V - Feeding And Swallowing Disorders In Children

12Hrs

Concept of embryology related to feeding mechanism, Physiology of swallowing, Causes of dysphagia in children, Identification of signs and symptoms of dysphagia in children, Assessment of dysphagia in children, Intervention of dysphagia in children.

Extra reading/ Key words: phases of swallow, swallowing reflexes, instrumental evaluation, non oral feeding, feeding modification, MBS, Oral FEES (O FEES)

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Describe the neuroanatomy of speech and hearing.	PSO 1 PSO 4	R, E
CO-2	Define dysarthria and explain its types with characteristics	PSO 2 PSO 3	An, Ap
CO-3	Explain about the use of AAC in apraxia.	PSO 4	R
CO-4	What are the various behavioral management options for childhood dysarthria?	PSO 5	C
CO-5	What are the role of speech language pathologist in neonatal intensive care and feeding management?	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference	PSO 1 to	Ap, C

	thereby aiding in Employability, Entrepreneurship and skill development	PSO 5	
--	---	-------	--

References

Text Books:

1. Caruso, F. J. and Strand, E. A. (1999). *Clinical Management of Motor Speech Disorders in Children*. New York: Thieme.
2. Love, R.J. (2000) (2nd Ed). *Childhood Motor Speech Disorders*. Allyn & Bacon.
3. Love, R.J. and Webb, W.G. (1993). (2nd ed.) *Neurology for the Speech-Language Pathologist*. Reed Publishing (USA)

Reference Books:

1. Arvedson, J.C., and Brodsky, L. (2002) (2nd Ed.). *Pediatric swallowing and feeding*. San Diego, Singular publishing.
2. Hardy, J. (1983). *Cerebral Palsy. Remediation of Communication Disorder Series* by F.N. Martin. Englewood Cliffs, Prentice Hall Inc.
3. Rosenthal. S., Shipp and Lotze (1995). *Dysphagia and the child with developmental disabilities*. Singular Publishing Group.
4. Velleman, S. L (2003). *Resource guide for Childhood Apraxia of Speech*. Delmar/Thomson Learning.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B 4.2 Language Disorders in Children
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS4MCT02
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the bases of language acquisition, assessment and management of childhood language disorders

Course Objectives:

CO No.	Course Objectives
CO-1	Understand normal language acquisition
CO-2	Explain the process of acquisition of language and factors that influence its development in children
CO-3	Execute assessment of language delay and deviance in children
CO-4	Implementing appropriate strategies for intervention
CO-5	Discuss intervention techniques

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

UNIT 1: Bases of Language Acquisition, Development and Disorders 12 Hrs

Concept of theories of language acquisition , Basic concepts and terminologies of language development in bilingual children , Application of ICF in language disorders

Extra reading/ Key words: *Biologic, cognitive, ICD, DSM, ICF*

UNIT 2: Language Disorders – Definition, Classification, Causes, and Characteristics 12 Hrs

Definition and classification of language disorders , Identification of causes of language disorders
 Concept of syndromic condition leading to language disorders, Identification of other developmental disabilities

Extra reading/ Key words: *ASD, ADHD, RELD, SLI, LD, childhood aphasia, multiple disability, Language Learning Disability*

UNIT 3: Assessment of Language in Children

12 Hrs

Preliminary components of assessment: Case history, screening, evaluation of environmental, linguistic & cultural variables. , Methods to assess children with language disorder: Formal versus informal assessment; types of assessment materials: assessment scales, observational checklists, developmental scales; standardization, reliability, validity, sensitivity and specificity of test materials , Informal assessment - pre-linguistic behavior, play, mother-child interaction , Language sampling: planning and collecting representative sample; strategies to collecting language sample, audio-video recording, transcription, Analysis of language sample: Specific to various components of language such as phonology, morphology, syntax, semantics and pragmatics. , Test materials for assessing language skills: Assessment of Language Development (ALD), 3D-Language Assessment Test, Linguistic Profile Test, Com-DEALL checklist, other Indian and global tests , Test materials used for children with developmental delay, intellectual disability: Madras Developmental Program Scale, Bayley's Scale for infant and toddler development , Test materials used for children with autism spectrum disorder: Modified-Checklist for Assessment of Autism in Toddlers., Childhood Autism Rating Scale, Indian Scale for Assessment of Autism, Other test materials used for children with ADHD, ACA, LD (NIMH battery for assessment of Learning Disability) , Documenting assessment results: diagnostic report, summary report and referral report specific to disorder , Differential diagnosis of language disorders in children, Identification of components of analysis , Concept of methods to assess children with language disorders, Informal and formal assessment of children with language disorders , Documenting assessment results, Writing referral reports specific to disorder
Extra reading/ Key words *case history, test materials, diagnostic reports, referral reports, ICF frame work in assessment*

UNIT 4: Management of Language Disorders in Children – I

12 Hrs

General principles and strategies of in children with language impairment, Types of service delivery models, Reinforcement in language therapy, types and schedules of reinforcement, Choice of language for intervention, incorporating principles of multiculturalism into treatment activities, Choosing and framing goals and Objectives: SMART Objectives, Selection of specific treatment strategies
Extra reading/ Key words: *strategies, reinforcements, intervention, stimulation techniques, individual and group therapy, expansion plus*

UNIT 5: Management of Language Disorders in Children – II

12 Hrs

Team approach to intervention
Augmentative and alternative communication – types (aided and unaided) and application in child language disorders , Specific approaches to management of children with Autism, Approaches to management of children with LD , Strategies to facilitate language skills in children with disorders such as intellectual disability, Use of technology in language intervention , Home plan and counselling for children with language disorders, Documentation specific to the disorder, Decision making in therapy
Extra reading/ Key words : *goals, objectives, transfer, maintenance, generalization*

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the theories of language acquisition.	PSO 1	R, E

		PSO 4	
CO-2	Define Autism Spectrum Disorders. Explain in detail about the causes, classification and characteristics.	PSO 2 PSO 3	An, Ap
CO-3	Write in detail about the tests developed in India for assessing language disorders	PSO 4	R
CO-4	Describe about the application of AAC in childhood language disorders	PSO 5	C
CO-5	Prepare SOAP for Learning Disability	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Owens, R.E. (2008). *Language development: An introduction (7th ed.)*. Boston: Pearsons
2. Reed, V.A. (2004). *An Introduction to children with language disorders (3rd Ed.)* New York: Allyn & Bacon

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B 4.3 Diagnostic audiology : Physiological tests
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS4MCT21
Course Type	Theory
Credits	-
Marks	100

General Objectives:

- After completing this course, the student will be able to understand the
- The need and importance to carry out any physiological tests over behavioral tests
- The correlation between behavioral and electrophysiological tests

Course Objectives:

CO No.	Course Objectives
CO-1	Justify the need for using the different physiological tests in the audiological assessment
CO-2	Independently run the tests and interpret the results to detect the middle ear, cochlear and retro cochlear pathologies and also differentially diagnose
CO-3	Design tailor-made test protocols in immittance, AEPs and OAEs as per the clinical need
CO-4	Make appropriate diagnosis based on the test results and suggest referrals

UNIT I - Immittance evaluation

12Hrs

Concept of impedance and admittance, Measurement procedure and response parameters of tympanogram and reflexometry, Carryout different Eustachian tube functioning tests

Extra reading/ Key words: *wide band reflectance and wide band tympanometry*

UNIT II - Auditory evoked potentials (AEPS): auditory brainstem response (ABR)

12Hrs

Understanding the principle and instrumentation of AEP's ,Classification of AEPs ,Protocol and procedure of recording auditory brainstem response,Enumerating the factors affecting auditory brainstem responses

Extra reading/ Key words: *ABR in hearing screening, ABR in pediatrics*

UNIT III - Overview of other aeps**12Hrs**

Understanding of EcochG, MLR, LLR and ASSR, Implementing the AEP's for differentially diagnosing different disorders ,Other long latency potentials such as P300, MMN, P600, N400, T-complex, CNV and their clinical applications

Extra reading/ Key words : *clinical applications of EcochG, MLR, LLR and ASSR*

UNIT IV - Otoacoustic emissions**12Hrs**

Understanding the origin and classification of otoacoustic emissions ,Executing the measurement of SOAE, TEOAEs, and DPOAEs ,Attributing the clinical applications of OAE's

Extra reading/ Key words : *Contralateral suppression of OAEs*

UNIT V - Physiological tests for assessment of vestibular system**12Hrs**

Classifying various test to assess function of vestibular system, Procedure and interpretation of vestibular evoked myogenic potentials, Understanding the concept of Videonystagmography, videooculograph, electronystagmography, Attributing the clinical applications of vestibular test

Extra reading/ Key words : *anatomy and physiology of vestibular system*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Elaborate on Eustachian tube function tests.	PSO 3 PSO 1	R, Ap
CO-2	Explain the instrumentation and classification of AEP's.	PSO 3	R,E, Ap
CO-3	Detail the Protocol and procedure of recording LLR.	PSO 3	R,Ap
CO-4	Describe the procedure of measurement of DPOAE and TEOAE along with its clinical applications.	PSO 1 PSO 4	R,Ap
CO-5	Carry out various physiological tests to assess the function of vestibular system.	PSO 3 PSO 4	R,E, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Katz, J., Medwetsky, L., Burkard, R. F., & Hood, L. J. (Eds.). (2007). *Handbook of Clinical Audiology (6th revised North American ed edition)*. Philadelphia: Lippincott Williams and Wilkins.
2. Musiek, F. E., Baran, J. A., & Pinheiro, M. L. (1993). *Neuroaudiology: Case Studies (1 edition)*. San Diego, Calif: Singular. .
3. Gelfand, S. A. (2009). *Hearing: An Introduction to Psychological and Physiological Acoustics (5 edition)*. London: CRC Press.

Reference Books:

1. Martin, F.N (1994), Introduction to Audiology, New Jersey: Prentice Hall.
2. Silman S. and Silverman C.A. (1991). Auditory Diagnosis Principles and Application. New York: Academic Press, Inc.
3. Rupp, Stockdell (1980). Speech Protocols in Audiology, New York: Grune & Stratton.
4. Keith, R.M. (Ed.). (1981). Central Auditory Dysfunction. New York: Grune & Stratton.
5. Musiek, and Baran, J.A. (1987). Central Auditory Assessment: Thirty years of challenge and change. *Ear and Hearing* 3, 225-355.
6. Pinherio, H.L. Kusiek, F.E. (Eds) (1985). Assessment of Central Auditory Dysfunction Foundations and Correlates. Baltimore: Williams and Wilkins.
7. Willsford J.A. (1987), Handbook of Central Auditory Processing Disorders in Children. Drando, Grune & Stratton.
8. Feldman, A.S., & Willber, L.A. (Eds), (1976), Acoustic Impedance, Immittance: Measurement of Middle Ear Function, Baltimore: Williams & Wilkins. Feldman, A.S., & Willber, L.A. (Eds), (1976), Acoustic Impedance, Immittance: Measurement of Middle Ear Function, Baltimore: Williams & Wilkins.
9. Popelka, B.R. (Ed) (1981). Hearing Assessment with acoustic reflex. New York: Grune and Stratton.
10. Jacobson, J.T. (Ed) (1985). Auditory Brain Stem Response. Taylor and Francis, London.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B 4.4. Implantable Hearing Devices
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS4MCT22
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the, Candidacy criteria for fitting various implantable devices, Outcomes of fitting the implantable devices

Course Objectives:

CO No.	Course Objectives
CO-1	Assess candidacy for bone anchored hearing devices, middle ear implants, cochlear implants, and ABI
CO-2	Select the appropriate device depending on the audiological and non-audiological findings
CO-3	Handle post-implantation audiological management
CO-4	Assess the benefit derived from implantation
CO-5	Counsel the parents/care givers during different stages of implantation

UNIT I: Implantable Hearing Devices – Basics

12 Hrs

Understanding the need for implantable hearing devices, Analysing the candidacy for implantable hearing devices, Identifying the team involved for the fitting of implantable hearing devices

Extra reading/ Key words: *History of implantable hearing devices, Pre-implant counseling*

UNIT II: Bone Anchored Hearing Devices and Middle Ear Implants

12 Hrs

Classifying the types and components of Bone anchored hearing devices and middle ear implants, Critically analysing the risks and complications of fitting these devices, Assessing candidacy and benefits of these devices

Extra reading/ Key words: *surgical approaches, contraindications*

UNIT III: Cochlear Implant and Brain Stem Implants – Basics

12 Hrs

Classifying different types of cochlear implant, Analysing the factors related to selection of the device, Assessing the audiological and non-audiological candidacy criteria

Extra reading/ Key words: *Surgical approaches, risks, complications*

UNIT IV: Cochlear Implants and Brainstem Implants**12 Hrs**

Understanding different signal coding strategies, Selecting appropriate objective measures of estimating benefit, Executing Post implant mapping and Audiological evaluation

Extra reading/ Key words: *Intraoperative monitoring by audiologists, assessment of benefits*

UNIT 5: Implantable Hearing Devices-Counselling and Troubleshooting; Rehabilitation**12 Hrs**

Executing Post implant Counselling on care and maintenance of the device, Understanding different post implant rehabilitation strategies, Differentiating the factors affecting outcome of implantable devices in adults and children

Extra reading/ Key words: *AVT, trouble shooting of devices*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Fitting of implantable devices requires a team management approach. Justify.	PSO 1 PSO 3	U
CO-2	Elaborate on the candidacy criteria and the components of bone anchored hearing aids.	PSO 4	R
CO-3	Discuss different audiological and non-audiological candidacy criteria for fitting of cochlear implants.	PSO 2	R, Ap
CO-4	Write in detail about the post mapping audiological evaluation.	PSO 3	C
CO-5	Discuss various factors affecting outcome of implantable devices in adults and children.	PSO 5	An, E
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References**Text Books:**

1. Clark, G., Cowan, R. S. C., & Dowell, R. C. (1997). *Cochlear Implantation for Infants and Children: Advances*. Singular Publishing Group.
2. Cooper, H., & Craddock, L. (2006). *Cochlear Implants: A Practical Guide*. Wiley.
3. Valente, M. (2002). *Strategies for selecting and verifying hearing aid fittings. 2nd Edn*. Thieme.
4. Gelfand, S. A. (2009). *Hearing: An Introduction to Psychological and Physiological Acoustics (5 edition)*. London: CRC Press.

Reference Books:

1. Eisenberg, L. S. (2009). *Clinical Management of Children with Cochlear Implants*. Plural Publishing.

2. Gifford, R. H. (2013). Cochlear Implant Patient Assessment: Evaluation of Candidacy, Performance, and Outcomes. Plural Publishing.
3. Hagr, A. (2007). BAHA: Bone-Anchored Hearing Aid. *International Journal of Health Sciences*, 1(2), 265–276.
4. Kompis, M., & Caversaccio, M.-D. (2011). *Implantable Bone Conduction Hearing Aids*. Karger Medical and Scientific Publishers.
5. Mankekar, G. (2014). *Implantable Hearing Devices other than Cochlear Implants*. Springer India.
6. Møller A.R. (2006). *Cochlear and Brainstem Implants* (Vol. 64).
7. Niparko, J. K. (2009). *Cochlear Implants: Principles & Practices*. Lippincott Williams & Wilkins.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B 4.5 Clinicals in Speech Language Pathology - III
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS3MCP23
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know various speech and language stimulation techniques
CO-2	Administer standard tests for childhood language disorders and speech sound disorder
CO-3	Assess individuals with swallowing disorder
CO-4	Assess individuals with voice disorder
CO-5	Perform case history for individuals with speech and language disorder

Know:

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

Know-how:

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

Show:

Acoustic analysis of voice – minimum of 2 individuals with voice disorders. Simple aerodynamic analysis - minimum of 2 individuals with voice disorders. Self evaluation of voice

– minimum of 2 individuals with voice disorders. Informal assessment of swallowing – minimum of 2 children. Assessment of reflexes and pre linguistic skills - minimum of 2 children. Pre –therapy assessment and lesson plan for children with language and speech sound disorders - minimum of 2 children each.

Do:

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

Evaluation:

Internal evaluation: shall be based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer formal assessment of voice	PSO 4	Ap
CO-2	Analysis of language components for Form, content & use	PSO 4	An
CO-3	Prepare assessment protocol for children with motor speech disorders	PSO 5	C
CO-4	Demonstrate speech & language stimulation techniques	PSO 4 PSO 1	R, Ap
CO-5	Counselling children with speech-language disorders	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Second Year - Semester – IV

Course Title	Major Core B4.6 Clinicals in Audiology - III
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP24
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know the National and international standards regarding electroacoustic characteristics of hearing aids
CO-2	Troubleshoot common problems with the hearing aids
CO-3	Select test battery depending on case history and basic audiological information
CO-4	Perform Hearing aid fitting
CO-5	Perform real ear and electroacoustic measurements

Know:

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

Know-how:

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

Show:

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

Do:

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

Evaluation:

Internal evaluation: Shall be based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Calculate pure tone average, % of hearing loss, minimum and maximum masking levels	PSO 4	R, Ap
CO-2	Perform procedures to assess the listening needs	PSO 4	An, Ap
CO-3	Counsel individuals with hearing loss	PSO 2	Ap
CO-4	Analyse the case history and arrive at a diagnosis	PSO 2 PSO 4	E, An
CO-5	Plan for Audiological test battery	PSO 5	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B 5.1 Structural Anomalies And Speech Disorders
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS5MCT25
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of disorders with oro facial structural anomalies

Course Objectives:

CO No.	Course Objectives
CO-1	Understand the characteristics of disorders with structural anomalies including speech
CO-2	Evaluate and diagnose the speech characteristics seen in these disorders
CO-3	Execute the techniques for the management of speech disorders in cleft lip and palate conditions
CO-4	Summarize the characteristics & assessment of laryngectomy
CO-5	Explain structural anomalies of tongue and mandible - characteristics, assessment and management

UNIT I - Speech Characteristics of Persons with Cleft Lip and Palate

12Hrs

Types, characteristics and classification of cleft lip and palate, Identification of causes of cleft lip and palate, Concept of velopharyngeal inadequacy, Identification of associated problems in persons with cleft lip and palate

Extra reading/ Key words: *genetic, speech, language, feeding, occlusion, velopharyngeal dysfunction*

UNIT II – Assessment and Management of Cleft Lip and Palate Speech

12Hrs

Role of multi-disciplinary team in assessment, Assessment of persons with cleft lip and palate for speech language functions, Diagnosis and differential diagnosis of speech related functions, Reporting test results using Universal Parameters, Surgical and prosthetic management, Techniques and strategies to correct speech sound disorders and feeding, Counselling and guidance

Extra reading/ Key words: *assessment, techniques, prosthesis, surgery*

UNIT III - Structural Anomalies of Tongue and Mandible - Characteristics, Assessment and Management **12Hrs**

Types, classification and characteristics of structural anomalies of tongue and mandible, Causes for structural anomalies of tongue and mandible, Role of multidisciplinary team, Associated problems in persons with structural anomalies of tongue and mandible, Management of persons with structural anomalies of tongue and mandible

Extra reading/ Key words: *glossectomy, mandibulectomy, prosthesis, feeding, surgery, speech*

UNIT IV - Characteristics & Assessment of Laryngectomy **12Hrs**

Causes, symptoms and classifications of laryngeal cancers, Team of professionals in the management of persons with laryngeal cancer, Surgery for laryngeal cancers: types and outcome, Associated problems in laryngectomy individuals, Assessment of speech and communication skills of laryngectomy individuals: Pre and post-operative considerations

Extra reading/ Key words: *laryngectomy, cancer, surgery types, pre and post operative counselling, aquather*

UNIT V - Management of Speech and Communication in Laryngectomies **12Hrs**

Esophageal speech, trachea esophageal speech and artificial larynx- candidacy, types of air intake procedures, speech characteristics and its modification through techniques and strategies, complications and contraindications, Other remedial procedures: Pharyngeal speech, buccal speech, ASAI speech, gastric speech, Speech restoration in laryngectomy

Extra reading/ Key words: *esophageal speech, TEP, artificial larynx, speech restoration, natural methods*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Describe the classification of cleft lip and palate.	PSO 1 PSO 4	R, E
CO-2	Explain the objective assessment of cleft lip and palate.	PSO 2 PSO 3	An, Ap
CO-3	Detail about the associated problems in mandibulectomy.	PSO 4	R
CO-4	Execute various management options for glossectomy?	PSO 5	C
CO-5	Explain about post operative counselling in laryngectomy	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Peterson-Falzone, S. J., Cardomone, J. T., & Karnell, M. P. (2006). *The Clinician Guide to Treating Cleft Palate Speech*. Mosby, Elsevier.

Reference Books:

5. Berkowitz. S. (2001). *Cleft Lip and Palate: Perspectives in Management*. Vol II. San Diego, London, Singular Publishing Group Inc.
6. Falzone. P., Jones. M. A., & Karnell. M. P. (2010). *Cleft Palate Speech*. IV Ed., Mosby Inc.
6. Ginette, P. (2014). *Speech Therapy in Cleft Palate and Velopharyngeal Dysfunction*. Guildford, J & R Press Ltd.
7. Karlind, M. & Leslie, G. (2009). *Cleft Lip and Palate: Interdisciplinary Issues and Treatment*. Texas, Pro Ed.
8. Kummer, A.W. (2014). *Cleft Palate and Craniofacial Anomalies: The Effects on Speech and Resonance*. Delmar, Cengage Learning.
9. Salmon . J & Shriley (1999). *Alaryngeal speech rehabilitation for clinicians and by clinicians*. ProEd
10. Yvonne, E (Ed) (1983). *Laryngectomy: Diagnosis to rehabilitation*. London: Croom Helm Ltd

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B 5.2. Fluency and its disorders
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS5MCT26
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of fluency disorders

Course Objectives:

CO No.	Course Objectives
CO-1	Understand the characteristics of fluency and its disorders
CO-2	Evaluate and diagnose fluency disorders
CO-3	Execute the techniques for the management of fluency disorders
CO-4	Understand the characteristics of fluency and its disorders
CO-5	Evaluate and diagnose fluency disorders

UNIT I : Fluency

12Hrs

Scope and definition of fluency, Factors influencing fluency, Definition and characteristics of features of suprasegmentals in speech: rate of speech, intonation. rhythm, stress and pause, Suprasegmental features in typical speech and persons with fluency disorders, Developmental aspects of suprasegmentals of speech , Normal Non Fluency

Extra reading/ Key words: *dimensions of fluency, TTRIP, suprasegmentals of speech*

UNIT II: Stuttering and Other Fluency Disorders

12Hrs

Definition and causes for stuttering , Characteristics of stuttering, Development of stuttering, Normal non fluency: characteristics and differential diagnosis , Theories of stuttering: organic, functional, neurogenic, diagnosogenic and learning , Cluttering: Definition, causes and characteristics, Neurogenic stuttering: Definition, causes and characteristics, Role of multi-disciplinary team in assessment

Extra reading/ Key words: *tracks of van riper, primary and secondary stuttering, transition period*

UNIT III: Assessment and Differential Diagnosis**12Hrs**

Assessment of fluency disorders, Subjective methods: protocols and tests and objective methods of assessment, Qualitative and quantitative assessment , Differential diagnosis of fluency disorders

Extra reading/ Key words: *SOAP for stuttering, OASES, ACES*

UNIT IV: Management of Stuttering**12Hrs**

Approaches to management, Changing scenario in management of stuttering, Different techniques and strategies used in management with their rationale, Relapse and recovery from stuttering, Issues of speech naturalness in stuttering

Extra reading/ Key words: *factors affecting relapse and recovery, naturalness rating scale*

UNIT V: Management of Fluency-Related Entities**12Hrs**

Management of cluttering: rationale, techniques and strategies, Management of neurogenic stuttering: rationale, techniques and strategies, Management of normal non-fluency: rationale, techniques and strategies, Relapse and recovery in cluttering and neurogenic stuttering, Changes in normal non-fluency, Prevention and early identification of stuttering, and cluttering

Extra reading/ Key words: *cluttering, neurogenic stuttering, normal non fluency, prevention, early identification*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Describe the development of suprasegmentals in speech.	PSO 1 PSO 3 PSO 4	U
CO-2	Define stuttering and other fluency disorders and explain its causes.	PSO 1 PSO 2 PSO 3 PSO 4	R, U
CO-3	Detail about the development of stuttering.	PSO 1 To PSO 5	R, U, An
CO-4	Execute techniques used in the management of stuttering and explain with its rationale.	PSO 1 PSO 4	U, Ap
CO-5	Explain the management for neurogenic stuttering.	PSO 3 PSO 5	R,U
CO-6	Differentiate between various fluency disorders and their differential diagnosis	PSO 2 PSO 3 PSO 4	An
CO-7	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Assessment and management of fluency disorders. Proceedings of the national workshop on “Assessment and management of fluency disorders”, 25-26 Oct 2007. All India Institute of Speech & Hearing, Mysore. 2007.
2. Bloodstein, O., & Ratner, N. B. (2008). *A Handbook on Stuttering (6th Ed.)*. Clifton Park, NY, Thomson Demer Learning.
3. Guitar, B. (2014). *Stuttering-An Integrated Approach to its Nature and Treatment. 4th Ed.* Baltimore, Lippincott Williams & Wilkins.

Reference Books:

1. Hegde, M. N. (2007). *Treatment Protocols for Stuttering*. CA Plural Publishing.
2. Howell, P. (2011). *Recovery from Stuttering*. New York, Psychology Press.
3. Packman, A., & Attanasio, J.S. (2004). *Theoretical Issues in Stuttering*. NY, Psychology Press.
4. Rentschler, G. J. (2012). *Here`s How to Do: Stuttering Therapy*. San Diego, Plural Publishing.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B.5.3. Paediatric audiology
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS5MCT27
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand auditory development and classify auditory disorders based on its etiology and also execute paediatric assessment protocol.

Course Objectives:

CO No.	Course Objectives
CO-1	Describe auditory development
CO-2	List etiologies and relate them to different types of auditory disorders that may arise
CO-3	Explain different hearing screening/identification procedures and their application
CO-4	Elaborate on different aspects of paediatric behavioural and physiological / electrophysiological evaluation

UNIT I - Auditory development

12Hrs

Embryology of the ear, Auditory system development from periphery to cortex, Stages of auditory development from 0-2 years, Incidence and prevalence of auditory disorders in children

Extra reading/ Key words: *prenatal hearing, Infant speech perception, Neuroplasticity*

UNIT II - auditory disorders

12Hr

Congenital and acquired hearing loss in children, Classification of hearing loss Minimal to profound, Impact on auditory skills, speech-language, educational and socio-emotional abilities, Differentiate Unilateral and Bilateral Hearing loss, Auditory disorders in special population and Multiple handicap

Extra reading/ Key words: *ANSD, CAPD, Pseudohypocosis*

UNIT III - Early identification of hearing loss**12Hrs**

Importance of early hearing detection and intervention, Hearing screening in infants, toddlers, preschool children and school age children, Hearing screening in Global and Indian context

Extra reading/ Key words : *HRR, JCIH, Sensitivity and Specificity*

UNIT IV - Pediatric assessment I**12Hrs**

Behavioral observation audiometry and Conditioned orientation reflex audiometry, Pure tone audiometry in children, Speech audiometry in children, Immittance evaluation in paediatric population, Central auditory processing disorders assessment

Extra reading/ Key words : *VRA, TROCA and play audiometry*

UNIT V - pediatric assessment II**12Hrs**

Recording, interpretation and factors affecting OAE in paediatric population, Recording and interpretation of click evoked and tone burst evoked ABR in paediatric population, Recording ASSR, AMLR and ALLR in paediatric population, Diagnostic test battery for different age groups and in special population

Extra reading/ Key words : *Differential diagnosis*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identification of auditory development from 0 to 2 years.	PSO 3 PSO 1	R, Ap
CO-2	Describe about the effects of neuroplasticity.	PSO 3	R,E, Ap
CO-3	Identify the characteristics of ANSD and formulate a test battery to diagnose it.	PSO 3	R,Ap
CO-4	Describe importance of hearing screening in preschool children and school children.	PSO 1 PSO 4	R,Ap
CO-5	Describe about various diagnostic test battery for different age groups.	PSO 3 PSO 4	R,E, Ap
CO-6	Formulate appropriate test protocol for a children with processing difficulties.	PSO 3 PSO 1	R,E, Ap
CO-7	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Northern, J.L. and Downs, M.P. (2014). *Hearing in Children. 6th Ed.* San Diego:Plural Publishing.

Reference Books:

1. Finitzo, T., Sininger, Y., Brookhouser, P., & Village, E. G. (2007). Year 2007 position statement: Principles and guidelines for early hearing detection and intervention programs. *Paediatrics*, 120(4), 898–921.
2. <http://doi.org/10.1542/peds.2007-2333>
3. Madell, J.R., & Flexer, C. (2008). *Paediatric Audiology: Diagnosis, Technology, and Management.* Ney York NY: Thieme Medical Publishers.
4. Northern, J.L. and Downs, M.P. (2014). *Hearing in Children. 6th Ed.* San Diego: Plural Publishing.
5. Seewald, R., and Thorpe, A.M. (2011). *Comprehensive Handbook of Paediatric Audiology*, San Diego: Plural Publishing. (core text book) www.jcih.org

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B 5.4. Aural Rehabilitation in Children
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS5MCT28
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand different communication options and strategies available for children with hearing impairment and execute various strategies and activities based on the child's need to enhance communication in children with hearing impairment

Course Objectives:

CO No.	Course Objectives
CO-1	Describe the different communication options available for young children with hearing impairment
CO-2	Explain the impact of hearing impairment on auditory development and spoken language communication
CO-3	Describe factors that affect of acoustic accessibility and strategies to manage them at home and in classroom
CO-4	Design activities for auditory learning at different levels
CO-5	Enumerate how the needs of individuals with hearing impairment using sign language and spoken language as form of communication in India are being met

UNIT I - Auditory Development, Spoken Communication and Acoustic Accessibility 12Hrs

Impact of hearing impairment on auditory development, spoken language acquisition, parent child communication, Hearing loss implications for speech perception, Optimizing hearing potential through hearing aids and cochlear implants, Barriers to acoustic accessibility, Managing the listening environment for infants, toddlers schools, Signal to noise ratio enhancing technologies personal FM, loop systems, desktop group systems, blue tooth connectivity

Extra reading/ Key words: *sensitivity period, auditory deprivation, acoustics of speech, SNR, reverberation*

UNIT II - Communication Options

12Hrs

Detecting and confirming hearing loss, Parent support counselling, individual family service plan Choosing communication options, Auditory oral approach, Manual/ sign language, Cued speech and total communication, Listening devices hearing aid/cochlear implant

Extra reading/ Key words: *early intervention ,AVT, sign language, early intervention*

UNIT III- Optimal Listening and Learning Environments Infancy and Early Childhood **12Hrs**

Involvement of family, Intervention: Assessment, auditory learning, listening and language facilitation techniques in infancy and early childhood, Issues with children with mild hearing loss, unilateral hearing loss, Management of Children with hearing loss, ANSD or APD and special needs, Intervention at school age: Functional hearing assessment, communication assessment and intervention to integrate with academic targets

Extra reading/ Key words: *Optimal environment, Inclusive education, ANSD, APD*

UNIT IV - Auditory - Speech Reading Training and Literacy **12Hrs**

Auditory training/learning four design principles skill, stimuli, activity, and difficulty level, Early training Objectives, Formal and informal training, Auditory training for infants and very young children, Speech and language and literacy characteristics assessment and therapy

Extra reading/ Key words: *candidacy, speech reading, analytic and synthetic training, outcome measures*

UNIT V - Indian Perspectives **12Hrs**

Prevalence of hearing impairment in children, Available resources for education of the hearing impaired and historical perspectives in education, Early intervention programs and centres, Schools, College and vocational training centers for the hearing impaired, Assessment and therapy tools developed for individuals with hearing impairment in India.

Extra reading/ Key words: *ISL, Sign language, Cued speech, manpower resources*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify the barriers to acoustic audibility	PSO 1 PSO 3	U
CO-2	Differentiate auditory oral approach and auditory verbal therapy.	PSO 4	R
CO-3	Describe optimum listening and learning environment and its importance in communication.	PSO 2	R, Ap
CO-4	Describe about analytic and synthetic training objectives and procedure	PSO 3	C
CO-5	Administration of therapy tools developed for individuals with hearing impairment in India.	PSO 5	An, E
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Northern, J.L. and Downs, M.P. (2014). *Hearing in Children. 6th Ed.* San Diego: Plural Publishing.
2. Fitzpatrick, E.M., and Doucet S.P. (2013) (Eds). *Paediatric Audiologic Rehabilitation.* Thieme, New York

Reference Books:

1. Hull, R. H., (2014) ed. Introduction to Aural Rehabilitation 2nd edition Plural Publishing, San Diego Chapters 1, 2, 11 to 20
2. Schow, R.L. & Nerbonne, M.A., (2012). Introduction to Audiologic Rehabilitation (6th edition), Allyn & Bacon, Boston.
3. Tye-Murray, N., (2014). Foundations of Aural Rehabilitation: Children , adults and their family members 4th edition Plural Publishing San Diego Chapters 5-10

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B5.5 Clinicals in Speech Language Pathology - IV
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP29
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know procedures to assess individuals with cleft lip and palate and laryngectomy
CO-2	Administer standard tests for childhood language disorders and fluency disorder
CO-3	Assess speech intelligibility, rate and nasality
CO-4	Evaluate the percentage of dis/dysfluencies
CO-5	Perform case history for individuals with speech and language disorder

Know:

Procedures to assess speech fluency and its parameters using standardized tests for children and adults. Differential diagnosis of motor speech disorders in children. Procedures to assess individuals with cleft lip and palate, and other oro-facial structural abnormalities. Procedures to assess laryngectomy and provide management options.

Know-how:

To administer at least two more (in addition to earlier semesters) standard tests for childhood language disorders. To record a speech sample for analysis of fluency skills (including blocks & its frequency, rate of speech, prosody, etc.). To assess posture and breathing for speech in children with motor speech disorders. To consult with inter-disciplinary medical/rehabilitation team and counsel the individual/family regarding management options and prognosis.

Show:

Rating of cleft, speech intelligibility and nasality – minimum of 2 individuals with cleft lip and palate. Language assessment - minimum of 2 individuals with cleft lip and palate. Transcription of speech sample and assessment of percentage dis/dysfluency– minimum of 2 individuals with stuttering. Assessment of rate of speech on various speech tasks – at least on 2 children & adults.

Do:

Voice assessment report - minimum of 2 individuals with voice disorders. Fluency assessment report - minimum of 2 individuals with fluency disorders. Oral peripheral examination on minimum of 2 individuals with cleft lip and palate. Apply speech language stimulation/therapy techniques on 5 children with language disorders/speech sound disorders/ motor speech disorders – minimum 5 sessions of therapy for each child.

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer formal assessment of fluency	PSO 4	Ap
CO-2	Analysis of components of speech	PSO 4	An
CO-3	Prepare assessment protocol for individuals with fluency disorder and maxillofacial anomalies	PSO 5	C
CO-4	Demonstrate speech & language stimulation techniques	PSO 4 PSO 1	R, Ap
CO-5	Counselling children with fluency disorder and maxillofacial anomalies	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B5.6 Clinicals in Audiology - IV
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP30
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know the protocols available to test human auditory system
CO-2	Perform environmental modification for an individual with hearing impairment
CO-3	Analyse ABR waveforms
CO-4	Perform pediatric hearing assessment
CO-5	Carry out listening training for children

Know:

Different protocols in tympanometry and reflexometry. Different protocols used in auditory brainstem responses. Protocols for screening and diagnostic otoacoustic emissions. Tests to assess vestibular system. Different indications for selecting implantable hearing devices. Various speech stimulation and auditory training techniques.

Know-how:

To administer auditory brainstem responses for the purpose of threshold estimation and site of lesion testing. To administer high frequency tympanometry and calculate resonance frequency. To administer high risk register. To modify the given environment to suit the needs of hearing impairment.

Show:

Analysis of ABR waveforms – threshold estimation and site of lesion. Analysis of immittance audiometry and relating to other tests – 5 individuals with conductive and 5 individuals with sensori-neural hearing loss. How to formulate select appropriate auditory training technique based on audiological evaluation.

Do:

Threshold estimation on 5 infants (< 2 years) TEOAE and DPOAE on 5 infants (<2 years)
BOA on 5 infants (<2 years) VRA on 2 infants (6 month – 3 year) Conditioned play
audiometry – 3 children (3-6 years) Hearing aid fitment on 1 infant (< 3 years) 2 children (3-6
years), Listening age of 3 children with hearing impairment Appropriate auditory training on 5
children with hearing loss

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer Audiological test battery	PSO 4	R, Ap
CO-2	Perform procedures to assess the listening needs	PSO 4	An, Ap
CO-3	Counsel parents regarding hearing status of the child	PSO 2	Ap
CO-4	Carry out listening training and	PSO 1	R, Ap
CO-5	Plan activities for listening training	PSO 5	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – VI

Course Title	Major Core B 6.1 Motor Speech Disorders in Adults
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS6MCT31
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of motor speech disorders in adults

Course Objectives:

CO No.	Course Objectives
CO-1	Understand the characteristics of acquired motor speech disorders in adults
CO-2	Evaluate and diagnose the speech characteristics seen in these disorders
CO-3	Execute the techniques for the management of speech disorders in these conditions

UNIT 1: Causes & Characteristics of Dysarthria

12Hrs

Definition, etiology and classification of acquired dysarthria , General, speech and feeding related characteristics of acquired dysarthria with and without genetic underpinnings, Different causes and disorders associated with acquired dysarthria

Extra reading/ Key words: *dysarthria, vascular lesions, infectious conditions, traumatic conditions, toxic lesions, metabolic disorders, idiopathic lesions*

UNIT 2: Assessment and Diagnosis of Dysarthria

12Hrs

Subjective assessment of dysarthria, Instrumental analysis of speech in dysarthria: Acoustic, kinematic and physiological, Advantages and disadvantages of subjective and instrumental procedures in the assessment of dysarthria in adults, Assessment of feeding, swallowing and related issues in persons with dysarthria

Extra reading/ Key words: *subjective, instrumental, differential diagnosis, swallowing assessment*

UNIT 3: Management of Dysarthria

12Hrs

Management of acquired dysarthria , General principles in the management of dysarthria Influence of medical, prosthetic and surgical procedures on the speech in persons with acquired dysarthria., Facilitative approach: vegetative, sensorimotor and reflex based. , Systems approach:

correction of respiratory, phonatory, resonatory, articulatory and prosodic errors. , Strategies to improve speech intelligibility and speech enhancement techniques, Strategies to improve feeding, swallowing behavior in persons with acquired dysarthria

Extra reading/ Key words: *principles, medical, prosthetic, surgical, facilitative, intelligibility, feeding*

UNIT 4: Assessment and Management of Apraxia in Adults

12Hrs

Definition, etiology and classification of acquired apraxia , Characteristics of nonverbal apraxia's in adults

Characteristics of verbal apraxia's in adults , Subjective assessment strategies: standard tests and scales, protocols and behavioral profiles , Instrumental analysis of the speech of apraxia in adults: Acoustic, Kinematic and Physiological , Management Approaches for verbal & nonverbal apraxia: principles and strategies

Extra reading/ Key words: *acquired, apraxia, subjective, instrumental, approaches*

UNIT 5: Management Related Issues in Motor Speech Disorders

12Hrs

Team involved in the management of persons with acquired dysarthria and Apraxia, Issues related to maintenance and generalization of speech in dysarthria and Apraxia, Counselling and guidance for persons with acquired dysarthria and Apraxia, Augmentative and alternative strategies for persons with acquired dysarthria and apraxia

Extra reading/ Key words: *maintenance, generalization, counselling, AAC*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Explain the subjective assessment of dysarthria.	PSO 1 PSO 4	R, E
CO-2	Detail about the differential diagnosis between dysarthria and aphasia	PSO 2 PSO 3	An, Ap
CO-3	Explain about the characteristics and causes of verbal and nonverbal apraxia in adults	PSO 4	R
CO-4	Explain the role of multidisciplinary team in the management of dysarthria and apraxia in adults.	PSO 2	An, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Brookshire, R. H. (2007). *Introduction to Neurogenic Communication Disorders*. University of Virginia, Mosby.
2. Duffy, J. R. (2013). *Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed.)*. University of Michigan, Elsevier Mosby

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – VI

Course Title	Major Core B 6.2. Language disorders in adults
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCT07
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to understand the basic characteristics, assessment and management of language disorders in adults

Course Objectives:

CO No.	Course Objectives
CO-1	Understand the characteristics of language disorders in adults
CO-2	Evaluate and diagnose adult language disorders
CO-3	Execute the techniques for the management of respective disorders

UNIT I: Neural Bases of Language

12Hrs

Correlates of language functions: Neuroanatomical Neurophysiological Neurobiological and Cognitive, Neurolinguistic models of language processing: Connectionist models, Hierarchical models, Global models, Process models, Computational models, Language process in bi/multilingualism, Language processing in right hemisphere

Extra reading/ Key words: *correlated, models, bilingualism, processing, right hemisphere*

UNIT II: Language Disorders in Adults

12Hrs

Definition, causes and characteristics of speech, language and cognition in adult language disorders, Differential diagnosis of various language disorders seen in adults.

Extra reading/ Key words: *aphasia, PPA, RHD, dementia, schizophasia, TBI, subcortical*

UNIT III: Assessment and Diagnosis of Language Disorders

12Hrs

Assessment of the following in aphasia, primary progressive aphasia, traumatic brain injury, right hemisphere damage, schizophasia and dementia, Linguistic behaviour including speech: scales, tests, protocols, Assessment of cognitive, social, behavioural characteristics, Medical Investigation: Neuroimaging

Extra reading/ Key words: *assessment, scales, test, protocols, investigation*

UNIT IV: Management Of Language Disorders**12Hrs**

Medical, linguistic and programmed intervention for persons with neurogenic language disorders

Extra reading/ Key words: *intervention, medical, linguistic, adult language disorder***UNIT V: Rehabilitation Issues Relating To Adult Language Disorders****12Hrs**

Team involved in the rehabilitation of persons with adult language disorders, Factors influencing the assessment and intervention for language in the context of bilingual and multilingual influences, Factors influencing the assessment and management of language in persons who are preliterate, illiterate and literate, Assessment of quality of life, Recovery patterns and prognosis in adults with language disorders, Age related influence in adults with language disorders, Counselling and guidance for adults with language disorders, Generalization and maintenance issues in adults with language disorder, Augmentative and alternative strategies for adults with language disorders

Extra reading/ Key words: *team, factors, recovery, QoL, counselling, generalization, maintenance, AAC***Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.Course Outcomes:**

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Identify the neuroanatomical correlates of language function.	PSO 1 PSO 3 PSO 4	U, R
CO-2	Detail about the neurolinguistic models of language function.	PSO 1 PSO 2 PSO 3 PSO 4	R, U
CO-3	Plan assessment and intervention for neurological language disorders	PSO 1 PSO 2 PSO 4 PSO 3 PSO 5	Ap, An, E
CO-4	Explain the differential diagnosis between aphasia and dementia.	PSO 1 PSO 4	U, Ap
CO-6	Execute language intervention strategies for individual diagnosed with Brocas aphasia.	PSO 1 PSO 3 PSO 4	An, C
CO-7	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References**Text Books:**

1. Chapey, R. (2008). *Language Intervention strategies in aphasia and related neurogenic communication disorders*. Philadelphia: Lippincott Williams and Wilkins

2. Lapointe, L. L. (2005). *Aphasia and related neurogenic language disorders. (3rdEdn.)*. Thieme.
3. Lapointe, L. L., Murdoch, B. E., & Stierwalt, J. A. G. (2010). *Brain based Communication Disorders*. Plural Publishing Inc.

Reference Books:

1. Whitworth, A., Webster, J., & Howard, D. (2005). *A cognitive neuropsychological approach to assessment and intervention in aphasia: A clinician's guide*. Psychology Press.
2. Edwards, S. (2005). *Fluent Aphasia*. Cambridge University Press. Laine, M. & Martin, N. (2006). *Anomia: Theoretical and Clinical Aspects*. Psychology Press.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – VI

Course Title	Major Core B.6.3 Aural rehabilitation in adults
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS6MCT33
Course Type	Theory
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to evaluate impaired communicative abilities and to facilitate communication by implementing successful aural rehabilitation program and execute various strategies and activities based on older adult's needs to enhance the quality of life.

Course Objectives:

CO No.	Course Objectives
CO-1	Describe the impact on the quality of life of adults with hearing impairment
CO-2	Explain the principles benefits and limitations of auditory training and speech reading
CO-3	Recognize factors that impair communication and suggest facilitative and repair strategies
CO-4	Identify components of aural rehabilitation program for adults (planning to outcome assessment)
CO-5	Identify strategies used with the older adult to implement a successful aural rehabilitation program
CO-6	Administer different tools for assessment of hearing handicap, attitudes and beliefs that can impact aural rehabilitation

UNIT I - Aural rehabilitation

12Hrs

Definition and Scope of aural rehabilitation in adults, Prevalence of hearing loss in children and in adults (global and Indian data), Relationship between audiometric data with limitations, hearing difficulties and amplification, Considerations, Quality of life and impact on income, education, employment, Assessing communication handicap : interviews, questionnaire

Extra reading/ Key words: *communication handicap, vocational rehabilitation*

UNIT II - Listening training and speech reading for adults**12Hr**

Listening to speech with a hearing loss, Listening training to improve speech perception and music perception, Candidacy and Benefits of auditory training, Speech reading for communication, traditional methods and factors affecting, Characteristics of good lip readers versus good speech readers, Assessing vision only auditory only processing

Extra reading/ Key words: *candidacy, speech perception, music perception, lip reading vs speech reading*

UNIT III - Communication strategies**12Hrs**

Factors that influence the reception of spoken message, Facilitative communication strategies, Repairing a communication breakdown, Conversational styles, Communication strategies training formal instruction, guided learning, real world, practice

Extra reading/ Key words : *repair strategies, communication breakdown*

UNIT IV - Aural rehabilitation for adults**12Hrs**

Principles, components and process of aural rehabilitation in adults, Psychological impact of hearing loss and Support through counselling, Orienting towards hearing aid use, Needs assessment for non-hearing and assistive technology for adults, Categories of assistive technology, Aural rehabilitation programs: Individual vs group,

Extra reading/ Key words : *assistive technologies, adverse listening condition*

UNIT V - aural rehabilitation for older adults**12Hrs**

Influence of aging on the older adults: quality of life and psychological and social perspectives, Auditory and non auditory barriers to communication, Barriers to aural rehabilitation, Hearing aid orientation and Factors influencing hearing aid use by the older adult, Aural rehabilitation for different populations of older adult: dependent, independent and semi independent older adult, Aural rehabilitation in an old age home

Extra reading/ Key words : *barriers, hearing aid features.*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Write about the scope of aural rehabilitation in adults.	PSO 1	R
CO-2	Describe the steps involved in listening training to improve speech and musical perception.	PSO 3	R,E

CO-3	Brief about various communication strategies available to enhance communication.	PSO 3	R,Ap
CO-4	Identify various assistive listening devices available to repair communication breakdown	PSO 1	R,Ap
CO-5	Describe the various auditory and non-auditory barriers to communication	PSO 3 PSO 4	R,E, Ap
CO-6	Undergo Clinical postings, Workshop, Clinical conference thereby aiding in Employability, Entrepreneurship and skill development	PSO 1 to PSO 5	Ap, C

References

Text Books:

1. Schwartz, S., (2007) *Choices in Deafness : a Parent's guide to Communication Options , 3rd edition* Woodbine house Bethesda
2. Fitzpatrick, E.M., and Doucet S.P. (2013) (Eds). *Paediatric Audiologic Rehabilitation*. Thieme, New York

Reference Books:

6. Hull, R. H., (2014) ed. *Introduction to Aural Rehabilitation* 2nd edition Plural Publishing, San Diego Chapters 1, 2, 11 to 20
7. Schow, R.L. & Nerbonne, M.A., (2012). *Introduction to Audiologic Rehabilitation* (6th edition), Allyn & Bacon, Boston.
8. Tye-Murray, N., (2014). *Foundations of Aural Rehabilitation: Children , adults and their family members* 4th edition Plural Publishing San Diego Chapters 5-10

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – VI

Course Title	Major Core B.6.4 Audiology In Practice
Total Hours	60 hrs
Hours/Week	4 Hrs Wk
Code	U17AS6MCT34
Course Type	Theory
Credits	-
Marks	100

General Objectives:

General Objectives: After completing this course, the student will be able to implement appropriate service delivery, welfare measures, policies and legislations to the persons with hearing impairment and generate awareness programs and strategies to address excessive noise exposure and provide appropriate service delivery with professional ethics.

Course Objectives:

CO No.	Course Objectives
CO-1	List and describe the highlights of legislations relating to hearing impairment and other disabilities
CO-2	Incorporate ethical practices in professional service delivery. Provide information on welfare measures, policies of government when needed
CO-3	Describe different strategies to create awareness of hearing impairment and programs to address them
CO-4	Explain the different clinical practice settings in audiology with reference to their requirement, protocols and role and responsibility of audiologist
CO-5	Describe terminology, technology and methods used in tele practice, and their application in audiological service delivery

UNIT I - Scope, Legislation and Ethics in Audiology

12Hrs

Scope of practice in audiology, Professional ethics (ISHA), Legislations and conventions relating to disability: need and historical aspects, Classification of hearing impairment and disability certification, Rehabilitation Council of India Act (1992) and its amendments, Person with Disability Act (1995), National Trust Act (1999), Right to Education (2012), Biwako Millennium framework (2003) and Salamanca Statement 1994, UNCRPD

Extra reading/ Key words: *barrier free access and universal design*

UNIT II – Hearing Health and Strategies For Prevention Of Hearing Impairment

12Hrs

Epidemiology of hearing disorders, Levels of prevention: Primary, secondary and tertiary, National programs and efforts national institutes, Welfare measures by Government, Camps (planning,

purpose, organizing and providing remedial measures), Public education and information (media, radio broadcasts, street plays), Hearing health and prevention programs (hearing help line, dangerous decibels, online hearing tests etc.)

Extra reading/ Key words: *ICD, ICF, prevention programs*

UNIT III - Audiological Practice In Different Settings

12Hrs

Private practice, ENT clinics and Neurology departments, Paediatric / neonatology clinic/departments

Factories and Industry, Hearing aid dispensing centre/hearing aid industry, Rehabilitation centres such as DRC/CRCs, Schools for the hearing impaired, Cochlear implant clinics, Multiple handicap habilitation centre and others

Extra reading/ Key words: *cochlear implant, multiple handicap*

UNIT IV - Noise And Hearing Conservation In Industry And Community

12Hrs

Introduction to noise, types and sources in the industry and community, Effects of noise in the auditory system (outer, middle and inner ear), Non auditory effects of noise (physiological, psychological, stress, sleep, job productivity and accidents), Legislations related to noise, permissible noise exposure levels, workers compensation, OSHA standards, Indian legislations related to noise, Instrumentation, measurement and procedure for measuring noise in industry and community, Hearing conservation program (HCP), steps, record keeping and Ear protective devices

Extra reading/ Key words: *TTS, PTS, NIHL, EPD's*

UNIT V - Scope And Practice of Tele Audiology

12Hrs

Introduction, definition, terminologies and history of tele-health, tele medicine, tele practice, Connectivity: internet, satellite, mobile data, Methods of tele-practice-store and forward and real time, Requirements/Technology for tele- audiology: Web based platforms, Video conferencing, infrastructure

Manpower at remote end and audiologist end, training assistants for tele-audiology

Audiological screening using tele-technology : new born hearing screening, school screening, community screening, counselling, Diagnostic audiological services using tele-technology : video otoscopy, pure tone audiometry, speech audiometry, oto acoustic emission, tympanometry, auditory brainstem response, Intervention / aural rehabilitation using tele-technology :hearing aid counselling and troubleshooting, tinnitus, counselling, aural rehabilitation services, AVT, and counselling

Extra reading/ Key words: *tele health, ethics*

Note: Texts given in the Extra reading /Key words must be tested only through Assignment and Seminars.

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Write a note on various legislations and conventions relating to disability.	PSO 1 PSO 4	R, E
CO-2	Describe various stage of prevention and its importance	PSO 2 PSO 3	An, Ap

CO-3	Briefly write a note on audiological service delivery at different settings.	PSO 4	R
CO-4	Write in detail about the audiological and non audiological effects of noise exposure.	PSO 5	C
CO-5	Describe scope and practice of tele audiology.	PSO 2	An, Ap

References

Text Books:

1. BIS specifications relating to Noise Measurements.- IS:7194-1973 Specification for assessment of noise exposure during work for hearing conservation purposes.
2. Census of India information on disability Audiology Telepractice; Editor in Chief, Catherine V. Palmer, Ph.D.; Guest Editor, Greg D. Givens, Ph.D. Seminars in Hearing, volume 26, number 1, 2005.

Reference Books:

1. Audiology Telepractice; Editor in Chief, Catherine V. Palmer, Ph.D.; Guest Editor, Greg D. Givens, Ph.D. Seminars in Hearing, volume 26, number 1, 2005.
2. Bergland, B., Lindwall, T., Schwela, D.H., eds (1999). Guidelines on Community noise <http://www.who.int/docstore/peh/noise/guidelines2.html> WHO 1999
3. Dobie, R. A (2001). Medical legal evaluation of hearing loss, 2nd Ed.
4. John Ribera. Tele-Audiology in the United States. In Clinical Technologies: Concepts, Methodologies, Tools and Applications (pp. 693-702), 2011. Hershey, PA: Medical Information Science Reference. doi:10.4018/978-1-60960-561-2.ch305
5. Lipscomb, D. M. (1994). Hearing conservation – In industry, schools and the military.
6. Mandke, K and Oza R.K (2014). Private practice in speech pathology and audiology, 2014 ISHA
7. Philippe Valentin Giffard. Tele-Audiology. Tort, 2012. ISBN 6139256615, 9786139256617
8. Rawool, V. W. (2012). Hearing conservation in occupational, recreational, educational and home setting. Thieme: New York RCI, PWD and National Trust, and Right to education act Richard Wootton, John Craig, Victor Patterson, editors. Introduction to telemedicine. Second edition. London: The Royal Society of Medicine Press Ltd. 2006. p. 206 ISBN: 1 85315 677 9.
9. Swanepoel de W, Hall JW 3rd .A systematic review of tele health applications in audiology. Telemed J E Health. 2010 Mar;16(2):181-200. doi: 10.1089/tmj.2009.0111.

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B6.5 Clinicals in Speech Language Pathology - V
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP35
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Differentially diagnose motor speech disorders in adults
CO-2	Administer standard tests for adult language disorders and motor speech disorder
CO-3	Assess dysphagia
CO-4	Evaluate the components of speech and language
CO-5	Manage individuals with aphasia and dysarthria

Know:

Procedures to assess motor speech disorders in adults. Differential diagnosis of motor speech disorders in adults. Procedures to assess individuals with adult language disorders, and other related abnormalities.

Know-how:

To administer at least two standard tests for adult language disorders. To administer at least two standard tests/protocols for motor speech disorders in adults. To record a sample for analysis of language and speech skills in adults with neurocommunication disorders. To assess posture, breathing, speech and swallowing in adults with motor speech disorders. To consult with interdisciplinary medical/rehabilitation team and counsel the individual/family regarding management options and prognosis.

Show:

Language assessment - minimum of 2 individuals after stroke. Associated problems in individuals after stroke and its evaluation. Dysphagia assessment – minimum of 2 children & adults. Goals and activities for therapy (including AAC) based on assessment/test results for adults with neuro-communication disorders.

Do:

Voice therapy - Minimum of 2 individuals with voice disorders. Fluency therapy - Minimum of 2 individuals with fluency disorders. Bed side evaluation of individuals with neuro-communication disorders – Minimum of 2 individuals. Apply speech language stimulation/therapy techniques on 5 children with language disorders/speech sound disorders/ motor speech disorders – minimum 5 sessions of therapy for each child.

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer formal tests of ALD and MSD assessment	PSO 4	Ap
CO-2	Analyse formally and informally the components of speech and language	PSO 4	An
CO-3	Prepare assessment protocol for individuals with dysphagia	PSO 5	C
CO-4	Demonstrate therapy techniques for voice and fluency	PSO 4 PSO 1	R, Ap
CO-5	Counseling individuals with aphasia and dysarthria	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B6.6 Clinicals in Audiology - V
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP36
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Know the standards related to noise exposure
CO-2	Perform mapping of cochlear implant in infants and children
CO-3	Analyse objective responses like compound action potential
CO-4	Plan hearing conservation program
CO-5	Carry out AVT for children with hearing impairment

Know:

National and international standards related to noise exposure. Recommend appropriate treatment options such as speech reading, AVT, combined approaches etc.

Know-how:

To carryout noise survey in Industry and community To carryout mapping of cochlear implant in infants and children using both objective and subjective procedures. To trouble shoot cochlear implant

Show:

Analysis of objective responses like compound action potential, stapedial reflexes on at least 3 samples Comprehensive hearing conservation program for at least 1 situation

Do:

AVT on at least 1 child with hearing impairment Trouble shooting and fine tuning of hearing aids on at least 5 geriatric clients At least one activity for different stages involved in auditory training

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.
External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer Audiological test battery	PSO 4	R, Ap
CO-2	Perform mapping	PSO 4	An, Ap
CO-3	Counsel parents regarding hearing status of the child	PSO 2	Ap
CO-4	Carry out AVT	PSO 1	R, Ap
CO-5	Plan activities for AVT	PSO 5	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B7.1 Clinicals in Speech Language Pathology - VI
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP37
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Diagnose speech, language, and swallowing disorders
CO-2	Administer standardized test battery for various communication disorders
CO-3	Maintain clinical records
CO-4	Plan clinical set up for Speech language pathology
CO-5	Manage persons with speech-language, communication, and swallowing disorders

General:

Clinical internship aims to provide clinical exposure and experience in different set ups. The students would not only carry out greater quantum of work, but also work varied clinical populations and in different contexts. Internship will provide greater opportunity for the students to liaise with professionals from allied fields. The intern is expected to demonstrate competence and independence in carrying out the following, among others:

- Diagnosis and management of speech, language, and swallowing disorders across life span.
- Report evaluation findings, counsel and make appropriate referrals.
- Plan and execute intervention and rehabilitation programs for persons with speech language, communication, and swallowing disorders
- Develop and maintain records related to persons with speech-language, communication, and swallowing disorders

- Engage in community related services such as camps, awareness programs specifically, and community based rehabilitation activities, in general.
- Make appropriate referrals and liaise with professionals from related fields.
- Gain experience in different set ups and be able to establish speech centres in different set-ups
- Demonstrate that the objectives of the B.ASLP program have been achieved.
- Advise on the welfare measures available for their clinical clientele and their families.
- Advise and fit appropriate aids and devices for their clinical population.

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer formal tests speech language pathology	PSO 4	Ap
CO-2	Analyse formally and informally the components of speech and language	PSO 4	An
CO-3	Prepare referral letter	PSO 5	C
CO-4	Demonstrate therapy techniques for speech and language	PSO 4 PSO 1	R, Ap
CO-5	Counseling individuals with speech and language disorder	PSO 2	Ap

For candidates admitted from 2017 onwards
Holy Cross College (Autonomous), Tiruchirappalli-2
Department of Audiology & Speech-Language Pathology
Third Year - Semester – V

Course Title	Major Core B7.2 Clinicals in Audiology - VI
Total Hours	160 hrs
Hours/Week	4 Hrs Wk
Code	U17AS2MCP38
Course Type	Practicals
Credits	-
Marks	100

General Objectives:

After completing this course, the student will be able to link theoretical knowledge with the practical concepts.

Course Objectives:

The learner will be able to

CO No.	Course Objectives
CO-1	Diagnose hearing disorders across life span
CO-2	Perform Audiological test battery
CO-3	Analyse the condition form case history
CO-4	Plan rehabilitation programs for persons with hearing disorders
CO-5	Make appropriate referrals and liaise with professionals from related fields

General:

Clinical internship aims to provide clinical exposure and experience in different set ups. The students would not only carry out greater quantum of work, but also work varied clinical populations and in different contexts. Internship will provide greater opportunity for the students to liaise with professionals from allied fields. The intern is expected to demonstrate competence and independence in carrying out the following, among others:

- Diagnosis and management of hearing disorders across life span.
- Report evaluation findings, counsel and make appropriate referrals.
- Plan and execute intervention and rehabilitation programs for persons with hearing disorders
- Develop and maintain records related to persons with hearing disorders.
- Engage in community related services such as camps, awareness programs specifically, and community based rehabilitation activities, in general.
- Make appropriate referrals and liaise with professionals from related fields.
- Gain experience in different set ups and be able to establish hearing centres in different set-ups.
- Demonstrate that the objectives of the B.ASLP program have been achieved.
- Advise on the welfare measures available for their clinical clientele and their families.
- Advise and fit appropriate aids and devices for their clinical population.

Evaluation:

Internal evaluation: Based on attendance, clinical diary, log book and learning conference.

External evaluation: Spot test, OSCE, Record, Viva-voce, case work

Course Outcomes:

CO No.	Course Outcomes	PSOs Addressed	Cognitive Level
CO-1	Administer Audiological test battery	PSO 4	R, Ap
CO-2	Perform appropriate referral	PSO 4	An, Ap
CO-3	Counsel parents and individuals with hearing loss	PSO 2	Ap
CO-4	Manage individuals with vestibular disorders	PSO 1	R, Ap
CO-5	Plan rehabilitation for individuals and adults with hearing loss	PSO 5	Ap