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Dated: 28.05.2016

01-6

**NOTIFICATION**

Sub: Minor modification in the Syllabus of M.A.SLP/M.Sc. (Speech and Hearing) Programme from the Academic Year 2016-17.

Ref: 1. Decision of the Faculty of Science & Technology Meeting held on 16.02.2016.

2. Decision of the Academic Council meeting held on 29-03-2016.

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The Board of Studies in Speech & Hearing (Combined) which met on 23-11-2015 has resolved to do some minor modification in the Syllabus of M.A.SLP/M.Sc. (Speech and Hearing) programme from the academic year 2016-17.

The Faculty of Science and Technology and the Academic Council at their Meetings held on 16.02.2016 and 29.03.2016 respectively have also approved the above said proposal and the same is hereby notified.

The Revised Syllabus of M.A.SLP/M.Sc. (Speech and Hearing) is annexed and it may be downloaded from the university website i.e., [www.uni-mysore.ac.in](http://www.uni-mysore.ac.in)

Draft approved by the Registrar

Deputy Registrar (Academic)

To:

- 1) The Dean, Faculty of Science & Technology, DOS in Earth Science, MGM.
- 2) The Registrar (Evaluation), University of Mysore, Mysore.
- 3) The Chairperson, Board of Studies / Department of Studies in Speech & Hearing (Combined), All India Institute of Speech and Hearing, Manasagangotri, Mysore.
- 4) The Director, College Development Council, University of Mysore, Mysore.
- 5) The Director, , All India Institute of Speech and Hearing, Manasagangotri, Mysore
- 6) The Principal, JSS Institute of Speech and Hearing, Mysore.
- 7) The Deputy/Assistant Registrar/Superintendent, Academic Section, Administration Branch, University of Mysore, Mysore.
- 8) The Deputy/Assistant Registrar/Superintendent, Examination Branch, UOM, Mysore.
- 9) The P.A. to the Vice-Chancellor/Registrar/Registrar( Evaluation), UOM., Mysore.
- 10) Office file.

Science Notification-2016-17 Ja

Existing Syllabus	Additions Suggested
<b>First Semester</b>	
<p><b><u>Paper No: 1.1 - HC: Research methods &amp; Statistics in Speech-Language &amp; Hearing</u></b></p> <p><b>Unit 1</b></p> <ul style="list-style-type: none"> <li>• Review of basic research methods, types, strategies and designs. (Ex-post facto research, Normative research, Standard group comparison, Experimental research, Clinical and applied research, Sample surveys, Evaluation research and Epidemiological research) with special focus on review of literature on research methodology in the field of Speech language pathology and Audiology since 1920s</li> <li>• Methods of Observation and measurement in speech language pathology and Audiology.</li> </ul> <p><b>Unit 2</b></p> <ul style="list-style-type: none"> <li>• Experimental designs. The structure and logic of experimental designs, single subject designs and group designs.</li> <li>• Documentation. a) Organization, format and writing style. b) Legal, ethical and cultural considerations for research in speech language pathology and audiology.</li> </ul> <p><b>Unit 3</b> <b>Unit 4</b></p>	<p><b><u>Paper No: 1.1 - HC: Research methods &amp; Statistics in Speech-Language &amp; Hearing</u></b></p> <p><b>Unit 1: Add</b></p> <ul style="list-style-type: none"> <li>• Hypothesis and types,</li> <li>• Variables and types of variables,</li> <li>• Reliability and Validity</li> </ul> <p><b>Unit 2: Add</b></p> <ul style="list-style-type: none"> <li>• Longitudinal and cross sectional studies</li> <li>• Case studies</li> <li>• Systematic reviews</li> <li>• Data Collection and Sampling Methods</li> <li>• Components of Research Article</li> </ul> <p><b>Unit 3: No Change</b> <b>Unit 4: No Change</b></p>
<p><b><u>Paper Code: SLP 1.4 - HC: Maxillofacial anomalies and phonological disorders</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b></p> <ul style="list-style-type: none"> <li>• Theories of phonological developments, novel phonological developments.</li> <li>• Application of phonological theories in evaluation and management of phonological disorders</li> <li>• Metaphon theory and therapy and application to the rehabilitation of phonological disorders.</li> <li>• Metalinguistic abilities in phonological disorders</li> <li>• Phonological processes – types, analysis and phonological processes in various communication disorders.</li> </ul>	<p><b><u>Paper Code: SLP 1.4 - HC: Maxillofacial anomalies and phonological disorders</u></b></p> <p><b>Unit 1: No Change</b> <b>Unit 2: Add</b></p> <ul style="list-style-type: none"> <li>• Introduction to phonological disorders</li> <li>• Assessment and Management of phonological disorders</li> </ul>

**Unit 3**

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

**Unit 4****Paper No. 1.5: HC -Auditory Physiology****Unit 1****Unit 2****Unit 3**

- Auditory nerve
  - Structure and tonotopic organization
  - Structure and contents of internal auditory meatus
  - Refractory period, adaptation, firing rates, types of responses
  - Electrophysiology – action potential, generation and properties
  - Stimulus coding, frequency, intensity, time, complex signals, speech
  - Non linearity
- Brain stem
  - Anatomy of CN, types of cells distribution
  - Anatomy of SOC, LL,IC,MGB
  - Non classical pathway
  - Tonotopic organization
  - Neurophysiology at different levels
  - Localization
  - Stimulus coding, neurotransmitters
  - Medial and lateral efferent effect on cochlear physiology, Auditory Nerve and CN
  - Plasticity

**Unit 4 – Auditory cortex**

- Anatomy and tonotopic organization of primary and secondary auditory areas and efferent pathways, neurotransmitters
- Neurobiological relationship between auditory cortex and other areas
- Neurophysiology of auditory areas

**Unit 3: Add**

Communication problems in CLP: compensatory articulation

**Unit 4:** No Change

**Paper No. 1.5: HC -Auditory Physiology**

**Unit 1:** No Change

**Unit 2:** No Change

**Unit 3:** Add

- Brainstem:
  - Insula: its role in hearing
  - Thalamo-cortical pathway
  - Multi-modality perception

**Unit 4: Auditory Cortex: Add**

- Descending Auditory Pathway: Efferent system of hearing
  - Neurobiological relationship between afferent and efferent auditory pathways
  - Role of efferent auditory system in cochlear protection, development of

<ul style="list-style-type: none"> <li>• Stimulus coding – frequency, intensity and time</li> <li>• Role of auditory cortex in localization</li> <li>• Plasticity</li> </ul>	<p>cochlear system and speech perception in noise</p>
<p><b>SECOND SEMESTER</b></p>	
<p><b><u>Paper No: AUD 2.2.2 SC: Vestibular system: assessment &amp; management</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b></p> <ul style="list-style-type: none"> <li>• Systems involved in balance disorders – Ocular system, sensory and proprioception receptors, cerebellum and its central connections, systemic and neurological disorders involving these systems.</li> </ul> <p><b>Unit 3</b></p> <ul style="list-style-type: none"> <li>• Diseases of vestibular nerve, schwannomas, patho physiology of the diseases</li> <li>• Involving peripheral and central vestibular disorders, BPPV, evaluation of the vestibular system.</li> </ul> <p><b>Unit 4</b></p> <ul style="list-style-type: none"> <li>• History taking in vertigo patients</li> <li>• Clinical test in balance disorders</li> <li>• ENG – procedure and clinical implication</li> <li>• Medical management and rehabilitation of vertigo patients</li> </ul>	<p><b><u>Paper No: AUD 2.2.2 SC: Vestibular system: assessment &amp; management</u></b></p> <p><b>Unit 1: No Change</b> <b>Unit 2: Balance Disorders: Add</b></p> <ul style="list-style-type: none"> <li>• Systems involved in vestibular disorders <ul style="list-style-type: none"> <li>○ Ocular system</li> <li>○ Sensory and proprioception receptors</li> <li>○ Cerebellum and its central connections</li> </ul> </li> <li>• Diseases of the vestibular system: <ul style="list-style-type: none"> <li>○ Diseases involving peripheral and central vestibular organs</li> <li>○ Diseases of vestibular nerve: Schwannomas and patho physiology of the diseases</li> <li>○ Systemic and neurological disorders involving vestibular systems</li> </ul> </li> </ul> <p><b>Unit 3: Assessment of Vestibular System: Add</b></p> <ul style="list-style-type: none"> <li>• History taking in the vertigo patients</li> <li>• Clinical subjective tests for balance disorders</li> <li>• Objective assessment of the vestibular disorders: <ul style="list-style-type: none"> <li>○ ENG test battery</li> <li>○ VNG test battery</li> <li>○ Posturography</li> <li>○ Rotational chair test</li> <li>○ cVEMP &amp; oVEMP</li> <li>○ Craniocorpography</li> <li>○ Video Head Impulse Test</li> <li>○ CHAMP</li> <li>○ Stacked ABR</li> </ul> </li> <li>• Relationship of the vestibular assessment procedures with the audiological findings</li> </ul> <p><b>Unit 4: Management of Vestibular Disorders: Add</b></p> <ul style="list-style-type: none"> <li>• Medical and surgical management of vertigo patients</li> <li>• Rehabilitative procedures for the management of vertigo: Maneuvers</li> <li>• Team approach in vestibular assessment and management</li> </ul>

**Paper No. 2.3: HC: Psychophysics of Audition**

**Unit 1**

**Unit 2**

- Critical band concept,
- equivalent rectangular band concept,
- frequency resolution, excitation pattern,
- Masking, PTC, using simultaneous and non simultaneous maskers, central masking, pulsation threshold, profile analysis, MDI
- Clinical application
- Binaural hearing
- MLD
- Lateralization, binaural integration, binaural advantage
- Binaural DLF, DLI, DLT, squelch, beats, rotating tones
- Time intensity trade
- Durlach and Jeffress models
- Clinical application
- Space perception
- Localization
- Minimal audible angle
- Role of pinna
- Cone of confusion
- Monaural localization
- Clinical application

**Unit 3**

- Temporal perception,
- Temporal acuity, temporal DL, temporal order,
- Gap detection (in broad band noise, in narrow band noise, sinusoid) temporal integration
- Duration discrimination
- Temporal modulation transfer function
- Factors affecting temporal perception
- Clinical application.
- Adaptation and fatigue,
- Levels of adaptation & physiology
- Methods to study
- Parameters affecting
- Clinical applications
- Path physiology of fatigue

**Paper No. 2.3: HC: Psychophysics of Audition**

**Unit 1:** No Change

**Unit 2: Add**

- TEN test
- Temporal fine structures

**Unit 3: Add**

**Space and Object Perception**

- Monaural localization: Role of pinna
- Minimal audible angle and cone of confusion
- Object perception and identification
- Spectral and temporal separation
- Auditory scene analysis and cocktail party effect
- Auditory stream segregation

<p><b>Unit 4</b></p> <p><b><u>Paper No. 2.4 HC: Electrophysiological Assessment of the Auditory System</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b> <b>Unit 3</b> <b>Unit 4</b></p> <ul style="list-style-type: none"> <li>• Factors affecting recording and interpretation of endogenous potentials such as P300, MMN, CNV. <ul style="list-style-type: none"> <li>○ Subject variables</li> <li>○ Stimulus variables</li> <li>○ Recording variables</li> </ul> </li> <li>• Clinical applications of endogenous potentials</li> <li>• Factors affecting recording and interpretation of steady state evoked potentials <ul style="list-style-type: none"> <li>○ Subject variables</li> <li>○ Stimulus variables</li> <li>○ Recording variables</li> </ul> </li> <li>• Clinical applications of SSEPs</li> </ul>	<p><b>Unit 4:</b> No Change</p> <p><b><u>Paper No. 2.4 HC: Electrophysiological Assessment of the Auditory System</u></b></p> <p><b>Unit 1:</b> No Change <b>Unit 2:</b> No Change <b>Unit 3:</b> No Change <b>Unit 4: Add</b> N400-P500, Processing Negativity</p> <ul style="list-style-type: none"> <li>• Objective measures for response identification</li> </ul>
<p><b>Third Semester</b></p>	
<p><b><u>Paper no: 3.2 - HC: Voice and its Disorders</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b></p> <ul style="list-style-type: none"> <li>• Voice evaluation – invasive and non invasive methods</li> <li>• Tests for assessing functions of Respiratory, resonatory and phonatory systems. Including acoustic analysis, psycho acoustic analysis, aerodynamic tests, tests for laryngeal measures and other measures.</li> <li>• Issues related professional voice and its care</li> </ul> <p><b>Unit 3</b> <b>Unit 4</b></p> <ul style="list-style-type: none"> <li>• Classification of neurogenic voice disorders and management.</li> <li>• Psychogenic voice disorders, models and management</li> <li>• Rehabilitation – phonosurgery, medical management, voice therapy and evidence based practice.</li> </ul>	<p><b><u>Paper no: 3.2 - HC: Voice and its Disorders</u></b></p> <p><b>Unit 1:</b> No Change <b>Unit 2: Add</b></p> <ul style="list-style-type: none"> <li>• Voice evaluation including case history, physical examination, visualizing vocal folds, invasive methods and non invasive methods of vocal fold vibration.</li> </ul> <p><b>Unit 3:</b> No Change <b>Unit 4: Add</b></p> <ul style="list-style-type: none"> <li>• Rehabilitation: Voice therapy with respect to types of voice disorders,</li> <li>• Evidence based practice</li> </ul>

<p><b><u>Paper no: 3.3 - HC: Speech Perception</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b> Perception of vowels and diphthongs in normal:</p> <ul style="list-style-type: none"> <li>• Major and minor cues to identify vowels and diphthongs</li> <li>• Major and minor cues to differentiate vowels from diphthongs</li> </ul> <p>Perception of consonants in normal:</p> <ol style="list-style-type: none"> <li>1. Major and minor cues to identify place, manner and voicing in: <ul style="list-style-type: none"> <li>○ Stops</li> <li>○ Fricatives</li> <li>○ Affricates</li> <li>○ Nasals</li> </ul> </li> <li>2. Major and minor cues to differentiate between Stops, Fricatives, Affricates, Nasals</li> <li>3. Acoustical parameters used to differentiate vowels from consonants</li> </ol> <p><b>Unit 3</b> <b>Unit 4</b></p>	<p><b><u>Paper no: 3.3 - HC: Speech Perception</u></b></p> <p><b>Unit 1:</b> No Change <b>Unit 2:</b> Add Perception of vowels and diphthongs in hearing impaired</p> <p>Perception of consonants in hearing impaired</p> <p><b>Unit 3:</b> No Change <b>Unit 4:</b> No change</p>
<p><b><u>Paper no: 3.5 - HC: Hearing devices</u></b></p> <p><b>Unit 1</b> <b>Unit 2</b> <b>Unit 3</b> <b>Unit 4</b></p> <ul style="list-style-type: none"> <li>• Middle ear implant, BAHA, Brainstem implant <ul style="list-style-type: none"> <li>○ Description</li> <li>○ Selection</li> <li>○ Assessment</li> <li>○ Management</li> </ul> </li> <li>• Outcome.</li> </ul>	<p><b><u>Paper no: 3.5 - HC: Hearing devices</u></b></p> <p><b>Unit 1:</b> No Change <b>Unit 2:</b> No Change <b>Unit 3:</b> No Change <b>Unit 4:</b> Add</p> <ul style="list-style-type: none"> <li>• Brainstem implants</li> <li>• Mid Brain Implants</li> </ul>
<p><b>Fourth Semester</b></p>	
<p><b><u>Paper no: 4.1 - HC: Adult Language Disorder</u></b></p> <p><b>Unit 1</b></p> <ul style="list-style-type: none"> <li>• Classification systems in Aphasia - Cortical v/s subcortical types - Traditional v/s linguistic approaches.</li> <li>• Linguistic impairments in Aphasias - Phonological deficits, semantic deficits, agrammatism &amp; paragrammatism</li> <li>• Non-linguistic impairments in aphasias</li> <li>• Primary progressive aphasia (PPA), Aphasia in multilinguals, illiterates, left-handers &amp; sign language users</li> </ul>	<p><b><u>Paper no: 4.1 - HC: Adult Language Disorder</u></b></p> <p><b>Unit 1:</b> Add</p> <ul style="list-style-type: none"> <li>• Neurolinguistic models</li> </ul>

**Unit 2**

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

**Unit 3****Unit 4****Paper No:4.3 HC- Advances in Management of Persons With Hearing Disorders****Unit 1**

- Management of special groups in respect to amplification / implantable devices, placements and role of caregivers
- Children and adults with multiple handicap (deaf-blind, neuro-motor, cognition problems, reading-writing problems)
- Outcome measures
- Management of children, adults, and geriatrics in respect to amplification/implantable devices, role of caregivers
- Mild-to-moderate hearing loss, unilateral hearing loss
- Sudden hearing loss, progressive hearing loss, fluctuating hearing loss
- Psychosocial measures, Assertiveness training
- Communication strategies
- Outcome measures

**Unit 2**

- Hair cell regeneration, gene therapy for hearing loss, genetic counseling.
- Management of tinnitus
  - Application of audiological findings in management of tinnitus
  - Neurophysiological model
  - Techniques of management including tinnitus retraining therapy
  - Amplification and maskers
  - Counselling
- Management of hyperacusis
  - Application of audiological findings in management of tinnitus
  - Neurophysiological model

**Unit 2: Add**

- Neurobehavioural assessment

**Unit 3: No Change****Unit 4: No Change****Paper No:4.3 HC- Advances in Management of Persons With Hearing Disorders****Unit 1: Add**

- Auditory verbal therapy for hearing aid and cochlear implant users

**Unit 2: Add**

- Management of recruitment and adaptation
- Management of auditory neuropathy/dys-synchrony



- Techniques of management including tinnitus retraining therapy
- Counselling

### **Unit 3**

- Legislations related to education issues of persons with hearing impairment
  - International declarations (such as Biwako millennium framework, Salamanca statement)
  - National acts / policies / schemes (such as PWD act, National Trust Act, Sarva Shiksha Abhiyan, DPEP scheme, ADIP scheme)
  - Measures to implement legislations, schemes, policies
  - Role of audiologist

### **Unit 4**

### **Unit 3: Add**

- Role of audiologist:
  - As an expert witness
  - Ethics in practice
- Telepractice in Audiology:
  - Concept of telepractice
  - Need for telepractice
  - Methods and infra-structure requirements
  - Advantage and limitations of telepractice

### **Unit 4: No Change**