

Sri Lakshmi Narayana Institute of Medical Sciences

Date 02/01/2018

From

Dr.K.R.Jothikumar,

Professor and Head,

otorhinolaryngology,

SLIMS

Bharath Institute of Higher Education and Research,

Puducherry.

To

The Dean,

SLIMS

Bharath Institute of Higher Education and Research,

Puducherry.

Sub: Permission to conduct value-added course: : Hands on training on Hearing Evaluation Using Impedance Audiometry reg.

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: Simulation Based Training In Audiology on Jan 2018 to April 2018. We solicit your kind permission for the same.

Kind Regards

Dr.K.R. Jothikumar

FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean:

The HOD:

The Expert:

The committee has discussed about the course and is approved.

Dean

(Sign&Seal)

DEAN

rof.K.BALAGURUNATHAN,M.S

(General surgeon)
SRI LAKSHMI NARAYANA
INSTITUTE OF MEDICAL SCIENCES
OSUDU PONDICHERRY

Subje

Subject expert (Sign & Seal)

Professor ENT

Sri Lakstroi Harayana Instata di Widen Science

Seal & Signature of the HOD

PROFESSOR & HOD

DEPARTMENT OF E.N.T

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PONDUCHE MILEY COS BUSINESS



Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU. AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST, PUDUCHERRY - 605 502.

[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011] [Affliated to Bharath University, Chennal - TN]

Ref. No. SLIMS/Dean Off/VAC/024

Date: 03/01/18

From

The Dean Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry – 605502

To

The Registrar, Bharath Institute of Higher Education and Research, Chennai - 600073.

Respected Sir

Request for permission and approval of Syllabus for certificate course (Value Sub:

Added course) for the academic year 2017-18 - Reg

Requesting letter received from Departments Ref:

With reference to the above, herewith forwarding the proposed list of Value-added courses for necessary permission and approval of syllabus to conduct the same.

This is for your kind information and needful action.

Thankingyou

Yours faithfully

[DEAN]

rof, K.BALAGURUNATHAN M.S.

(General surgeon) SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

OSUDU PONDICHERRY

Encl's:

- 1. Requesting letter received from department
- 2. Syllabus of thecourse
- 3. Details of faculty handlingcourse

Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry

VALUE ADDED COURSE : Hands on training on Hearing Evaluation Using Impedance Audiometry

COURSE CO-ORDINATOR DETAILS

Faculty Name: Dr. K. Venkataramanan

Email ID: entslims@gmail.com



Ref. No. BHIER/ VAC/B-02

From

The Registrar, Bharath Institute of Higher Education and Research, Chennai - 600073.

To

The Dean Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry – 605502

Sir / Madam,

Sub: Approval of Syllabus to conduct certificate course (Value Added course) for the

academic year 2017-2018 – Reg.

Ref: Ref. No. SLIMS/Dean Off/VAC /024 Dated: 03.01.2018

With reference to the above, it is to inform that the proposal submitted to conduct Value Added Course has been accepted and approved by BIHER, council meeting. List of the VAC are mentioned below for the academic year 2017–2018. The abstract of the VAC course completion detail should be submitted to the Registrar office.

Thanking you

Yours faithfully

Date:05.01.2018

DECISTRAD



Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST, PUDUCHERRY - 605 502.

[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]

[Affliated to Bharath University, Chennai - TN]

<u>Circular</u>

07/01/2018

Sub: Organising Value-added Course: Hands on training on Hearing Evaluation Using Impedance Audiometry **reg.**

With reference to the above mentioned subject, it is to bring to your notice that SLIMS, **Bharath** Institute of Higher Education and Research, is organising "Hands on training on Hearing Evaluation Using Impedance Audiometry". The course content and registration form is enclosed below.

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before <u>15/01/2017</u>. Applications received after the mentioned date shall not be entertained under any circumstances.

DEAN

Prof.K.BALAGURUNATHAN M.5 (General surgeon) SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES OSUDU PONDICHERRY

Encl: Copy of Course content

VALUE ADDED COURSE

1. Name of the programme &Code

Hands on training on Hearing Evaluation Using Impedance Audiometry—A value added course for the medical students.

& ENT 06

2. Duration & Period

30 hrs & Jan 2018-April 2018

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Pre test and post test which includes 10 mcgs - Enclosed as Annexure- III

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 time Jan 2018- April 2018

8. Year of discontinuation: 2018

9. Summary report of each program year-wise

	Value Added Course- Jan 2018- April 2018								
Sl. No	Course Code	Course Name	Resource Persons	Target Students	Strength & Year				
1	ENT 06	Hands on training on Hearing Evaluation Using Impedance Audiometry	1.Dr.Venkataramanm 2. Dr. Sreedhar.B 3.Dr. kalaiarasi.R	3 rd year MBBS students	15 students & 2018				

10. Course FeedBack

Enclosed as Annexure- V

71.R. J 4.

RESOURCEPERSON

- 1. Dr.K.R.Jothikumar
- 2. Dr.B.Sreedhar

Our

COORDINATOR Dr.K.Venkataramanan

COURSE PROPOSAL

1. NAME OF THE PROGRAMME

Hands on training on Hearing Evaluation Using Impedance Audiometry– A value added course for the medical students.

2. AIM

To provide hands on training to the students on Hearing Evaluation Using Impedance Audiometry

3. OBJECTIVES

a) To teach the students how to use Impedance audiometry for evaluation pf hearing and interpretation of the graph pattern

4. METHODOLOGY

Students who are interested in participating in value added course are enrolled and the course is conducted for them during the non college hours for a period of 30 hours from Jan 2017 – June 2017 . This course is conducted every 6 months.

Course Audience: 3rd year MBBS students

Course Coordinator: Dr.K.Venkataramanan

Course Faculties with Qualification and Designation:

1.Dr.K.R. jothikumar

2.Dr. Sreedhar.B

3.Dr. Kalaiarasi.R

Schedule followed during the course

No	Topic	Title	Duration	Date and time
		Introduction on impedance	3 hrs	4pm-7pm(20/1/18)
		audiometry		
		Interpretation of tympanogram	3 hrs	4pm-7pm(16/1/18)
		Fallacies of tympanometry test	3 hrs	4pm-7pm(13/2/18)
		ET function test, stapedial reflex test	3 hrs	4pm-7pm(26/2/18)
	Hands on training on Hearing Evaluation Using Impedance Audiometry	and its principle		
1		Metz recruitment test and acoustic	3 hrs	4pm-7pm(3/3/18),
1		reflex decay test		
	Impedance Addronletry	Other uses of acoustic reflex test	3 hrs	4pm-7pm(8/3/18)
		Demonstration of impedance	6hrs	4pm-6pm(13/3/18),4pm-6pm(18/3/18),4pm-6pm(25/3/18)
		audiometry and interpretation of		
		results		
		Hands on training on impedance	6hrs	4pm-6pm(29/3/18),4pm-6pm(4/4/18),4pm-6pm(10/4/18)
		audiometry and DOPS		
		TOTAL	30HRS	

REFERENCE BOOKS: 1) SCOTT BROWN 7th edition

2) ANIRBAN BISWAS 2nd edition

Tympanometry



- This test is a measure of the condition of middle ear with intact tympanic membrane.
- It measures the impedance (resistance) to the flow of sound energy through middle ear **On pressure changes** in the external auditory canal (EAC).
- Objective test
- It is a type of impedance audiometry.

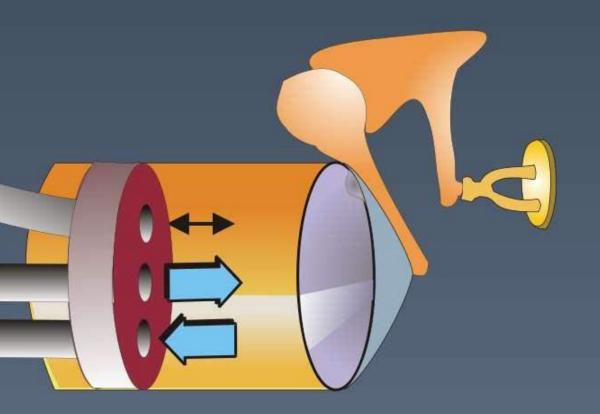
Tympanometry

Air pump

+**†**mm H₂O

220 Hz tone generator

Microphone, recorder



- The 3rd channel changes the pressure of EAC from + 200 to -400.
- When the pressure of EAC and middle ear becomes equal, maximum mobility of TM happens & therefore max. flow of acoustic energy (sound) occurs to middle ear.

- In tympanometry we measure 2 factors:
- Compliance (opposite of resistance/ impedance)
- Middle ear pressure

i Compliance

- It is the ease of mobility of tympanic membrane.
- The less the impedance (resistance), the more is the compliance.

In any ossicular discontinuity, TM mobility

In any ossicular fixation or fluid in middle ear, the compliance is decreased.

Middle ear pressure

- We just keep on changing the pressure of EAC through probe.
- During this process, when the process of EAC matches that of middle ear, d/t resonance, more TM movement occurs.
- For e.g. we found that TM moves max. when pressure of EAC is -200 mm of H2O, this indicates that middle ear pressure is also -200mm of H2O.

Significance of middle ear pressure

- The pressure of middle ear is regulated by the Eustachian tube.
- Normal pressure in adult is -50 to +50 mm of H2O.
- Normal pressure in children is -150 to +50 mm of H2O.
- If the pressure is negative beyond the normal range, it signifies Eustachian tube blockade.



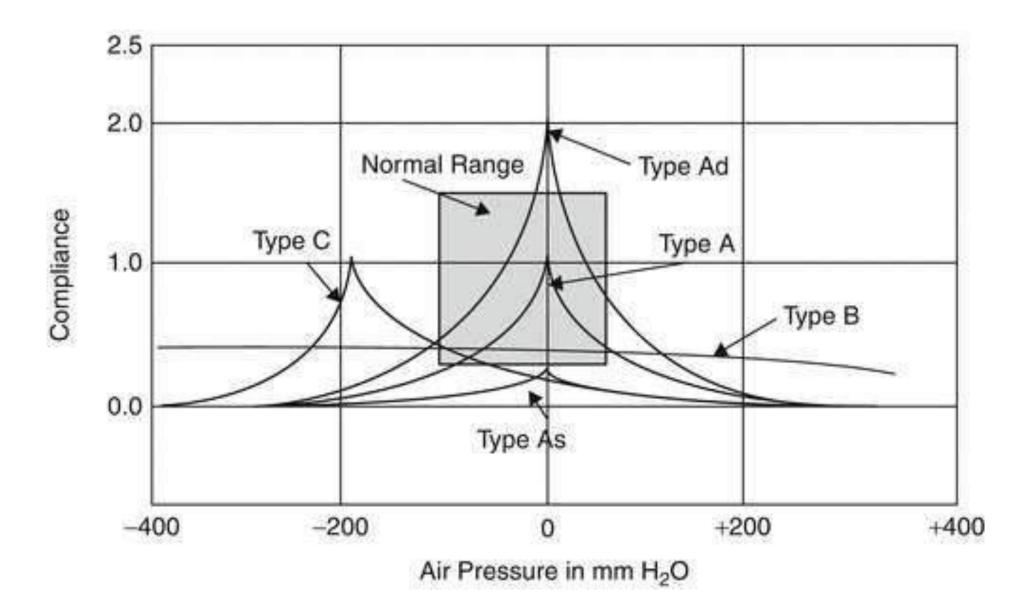
1. Reduced compliance, middle ear pressure also negative

normal

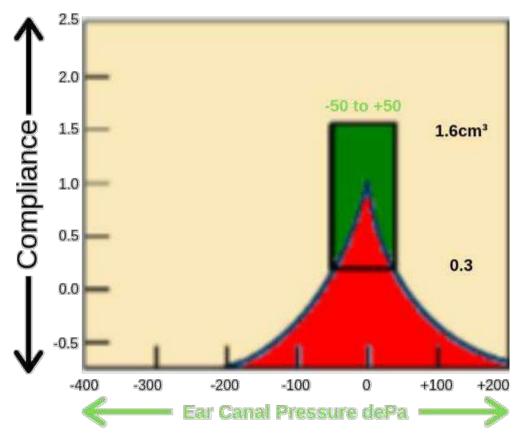
ET is block leading to fluid collection in middle ear,

e.g. in serous otitis media

ET is normal, reduced compliance is d/t ossicular fixity e.g. in otosclerosis

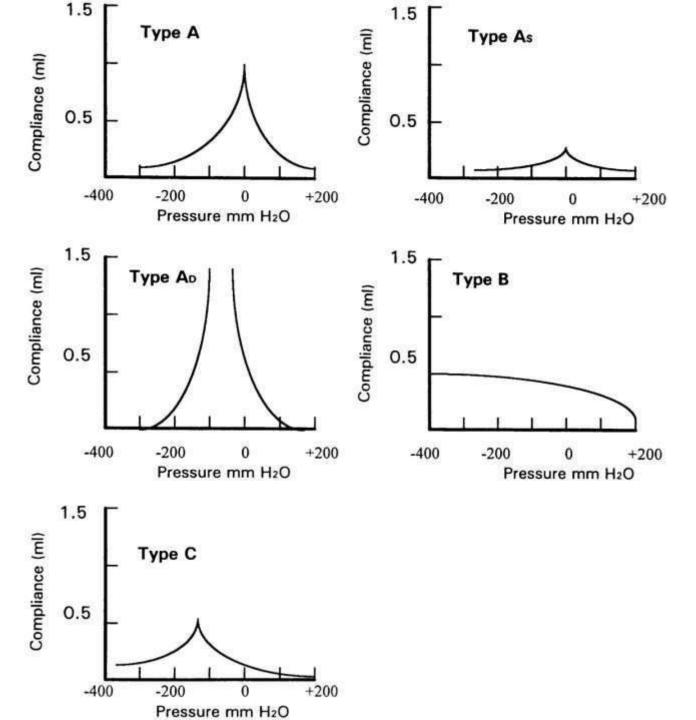


Type A



Normal Tympanogram

Ear Canal Volume (ECV) 0.6 to 2.5 cm³
Middle Ear Pressure (MEP) -50 to +50 dePa
Admittance/Compliance 0.3 to 1.6cm³



Type	X axis (middle ear pressure)	Y axis (compliance of TM)	Examples
A	Normal (ET function is normal)	Normal (mobility of TM is normal)	-
As (S - Stiffness)	Normal	decrease	Otosclerosis or any ossicular fixation, tumors of middle ear like glomus jugulare
Ad (D - Discontinuity)	Normal	Increased (TM moves excessively)	Ossicular discontinuity, thin & lax TM, Also in post stapedectomy ear.
C (C - closure)	Negative (ET closure which is of short duration)	Normal (since ET closure is of short time, not enough fluid is collected)	Early stage of ET obstruction (closure)
B (B - blocked)	Negative (ET blocked for prolonged period)	Decreased (d/t collection of secretions/fluid in middle ear). So dome shaped curve.	Serous otitis media & adhesive otitis media (sequelae of SOM)

When the secretions or fluid fill the middle ear cavity completely, leading to no movement of TM, a flat curve results.

$\frac{Annexure\ 2}{Bharath\ Institute\ of\ Higher\ Education\ and\ Research}$ SLIMS

1	U15MB250	AARTHI .H
2	U15MB251	ABARNA. M
3	U15MB252	ABINAYA.J
4	U15MB253	ADARSH .S
5	U15MB254	AGILAN .A
6	U15MB255	AKSHAYA .S
7	U15MB256	AKSSHAYA .M.R
8	U15MB257	AMARNATH. S
9	U15MB258	AMUDHESAR .K.M
10	U15MB259	ANANDH.S
11	U15MB260	ARCHITH VIGNESH .B
12	U15MB261	ARJUNBALAJI .A
13	U15MB262	ARUL NIVETHINI V.A
14	U15MB263	ARUL PRINCE. E
15	U15MB265	ARUN PRASAD. K

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL

SCIENCES

PUDUCHERRY

TOPIC: Hands on training on Hearing Evaluation Using Impedance Audiometry (ENT 06) STUDENT NAME: UNIVERSITY NO:

- 1.Impedance audiometry is for pathology of
- a. External ear b. middle ear
- c. inner ear d.mastoid air cell
- 2. Flat tympanogram seen in
- a.ossciculardiscontinuity b.SOM
- c.otosclerosis d. safe CSOM
- 3. B type tympanogram seen in
- a.SOM b.Otosclerosis c.ossicluar discontinuity d.all of the above
- 4.impedance audiometry is done using frequency probe of
- a.226 hz b.550 hz c.440hz d.1000hz
- 5.stapedial reflex is mediated by
- a.5th and 7 th nerves b.5th and 8 th nerves c.6th and 7th nerves d.7th and 8th nerves
- 6.which following assess the resistance in middle ear
- a.PTA b.impedance audiometry
- c.Caloric test d. BERA
- 7.Dome shaped tympanogram is found in
- a. osscicular discontinuity b. SOM
- c. otosclerosis d. middle ear fluid
- 8.In otogenesis imperfecta the tympanogram is
- a.Flat b.non compliance
- c.high compliance d. low compliance

9.Ad type tympanogram seen in a. osscicular discontinuity b. SOM c. otosclerosis d.CSOM

10. In otosclerosis the type of tympanogram seen is

a.type A b.Type AS c.Type B d.Type C

6-which following assess the resistance in middle ear a.PTA _b.imp@dance audiometry c.Caloric test d. BERA 7.Dome shaped tympanogram is found in a. osscicular discontinuity b. SOM d. middle ear fluid c. otosclerosis 8.In otogenesis imperfecta the sympanogram is a.Flat lanon compliance c.high compliance d. low compliance 9.Ad type tympanogram seen in a ossokular discontinuity b. SOM c. otosclerosis d.CSOM 10. In otosclerosis the type of tympanogram seen is LOTYPE AS a.type A c.Type B

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Flunds on training on Hearing Evaluation Using Impedance Audiometry (ENT 96)

STUDENT HAME Anarch - 5 UNIVERSITY NO. VISMB 259.

1.impedance audiometry is for pathology of

a. External ear b.5-midgle sar

c. inner ear d.mastold air cell

2. flat tympanogram seen in

-a-osyciculardiscontinuity b.SOM

c.otosclerosis d. safe CSOM

3. B type tympanogram seen in

a.50M b.Otoscierosis

cossiclust discontinuity dail of the above

4.Impedance audiometry is done using frequency probe of

a.225 hr b.550 hr

c.440hz 6-1000hz

5.stapedial reflex is mediated by

a.5th and 7 th nerves b.5th and 8 th nerves

c,6" and 7" nerves d.7" and 8" nerves

7.Dome shaped tympanogram is found in

a osscicular discontinuity b. SOM

c_ourstlefosis d. middle ear fluid

8.In otogenesis imperfecta the tympanogram is \$\tilde{Flat}\$ b.non compliance

b.non compliance
 c.high compliance d. low compliance

9.Ad type tympanogram seen in

a osscicular discontinuity b 50M/

c. atosclerosis d.C50M

10. In otosclerosis the type of tympanogram seen is

a.type A b.Type/AS c.Type B d.Type C

ANNEXURE 3.

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Hands on training on Hearing Designation Using Impedance Audicenstry (ENT 66)

STUDENT NAME: Aharro M UNIVERSITY NO. LICMBES!

1. Impedance audiometry is for pathology of

a. External ear by middle ear

d.mastold air cell c. inner ear

2. Bat tympenogram seen in

E.oseciculardiscontinuity b.SOM

d. safe CSOM c.otosclerosis

3. B type tymponogram seen in

b.Otoscierosis

cossicius discontinuity dall of the above

4.Impedance audiometry is done using frequency probe of

b.550 hz a.226 hz

_d1000hr

Satapedial reflex is mediated by

x 5th and 7 th nerves b.5th and 8th nerves

C6th and 7th nerves d.7th and 8th nerves

6 which following assess the resistance in middle ner b-mipedance audiometry M.PTA c.Caloric test d. BENA 7.Dome shaped tympanogram is found in a, esscicular discontinuity by SOM d. middle ear fluid c. otosclerosis fi.In otogenesis imperfecta, the tympanogram, is a.Flat b.non compliance c.lefth compliance d. low compliance 9.Ad type tympanogram seen in a osscicular discontinuity b. SOM c. otoscierosis d.CSOM 10. In otosclerosis the type of tympanogram seen is atype A b.Type AS STYDE B d.Type C



ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Hands on training on Hearing Evaluation Using Impedance Audiometry (ENT 66)

STUDENT NAME: Abanna . M. UNIVERSITY NO: U1 5 M 8251

1.impedance audiometry is for pathology of

a External ear la middle ear

c. inner ear d.mastold air cell

2. flat tympanogram seen in

a-ossciculardiscontinuity b.SOM

c.otoscierosis d. safe CSOM

3. B type tympanogram seen in

a SOM .b Otoscierosis

c.ossicluar discontinuity d.all of the above

4.impedance audiometry is done using frequency probe of

-#:226 hz b.550 hz

c.440hz d.1000hz

5.stapedial reflex is mediated by

a.5" and 7 th nerves 4.5" and 8 th nerves

c.6th and 7th nerves d.7th and 8th nerves

6. which following access the resistance in middle ear

E.PTA Dimpedance audiometry

c.Caloric test d. BERA

7.Dome shaped tympanogram is found in

a osscicular discontinuity b-90M

c. otosclerasis.

d. middle ear fluid

8.In ptogenesis imperfects the tympanogram is

a.Flat

-trion compliance

c.high compliance d. low compliance

9 Ad type tympanogram seen in

e asscicular discontinuity b. SOM

c. otosclerosis

rl.CSOM

10. In otosclerosis the type of tympanogram seen is

altype A b.Type AS

cType B d.Type C

(8)

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Hands on training on Hearing Evaluation Using Impedance Audiometry (ENT 66)

STUDENT HAME: Atlandh S UNIVERSITY NO: U15M8259.

I impedance audiometry is for pathology of

a. External par be middle ear

c. inner ear d.mastoid air cell

2. flat tympanogram seen in

and scicular discontinuity b.SOM

c.otoscierosis d. safe CSOM

3. B type tympanogram seen in

a.SOM b.Otosclerosis

Cossicium discontinuity d'all of the above

4.impedance audiometry is done using frequency probe of

225 hz 6.550 hz

c.440hz d.1000hz

5.stapedial reflex is mediated by

4.5° and 7 th nerves b.5° and 8 th nerves

c.6th and 7th nerves d.7th and 8th nerves



CERTIFICATE OF MERIT

This is to certify that ______ has actively participated in the Value Added Course on Hands on training on Hearing Evaluation Using Impedance Audiometry held during Jan 2018 – April 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.K.R. Jothikumar RESOURCE PERSON

Dr.R. Venkataramanan coordinator



Sri Lakshmi Narayana Institute of Medical Science





CERTIFICATE OF MERIT

This is to certify that Dr.Abinaya.J (U15MB252) has actively participated in the Value Added Course on Hands on training on Hearing Evaluation Using Impedance Audiometry held during Jan 2018 – April 2018 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.K.R. Jothikumar RESOURCE PERSON

71-18-74-0

Dr.R.Venkataramanan COORDINATOR

Annexure 5 Course/Training Feedback Form Student Feedback Form

Subject Code: <u>ENT06</u>			
Name of Student:	Roll No.: _		
We are constantly looking to improve our classes and delive evaluations, comments and suggestions will help us to improve our pe		raining t	o you. Your
SI. Particulars 1 2 3	3 4	5	

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear					
2	Course contents met with your expectations					
3	Lecturer sequence was well planned					
4	Lectures were clear and easy to understand					
5	Teaching aids were effective					
6	Instructors encourage interaction and were helpful					
7	The level of the course					
8	Overall rating of the course	1	2	3	4	5

* Rating: 5 – Outstanding;	4 - Excellent;	3 – <i>Good</i> ;	2- Satisfactory;	1 - Not-Satisfactory	
Suggestions if any:					

Course/Training Feedback Form

Student Feedback Form

2 Course contents met with your expectations 3 Lecturer sequence was well planned 4 Lectures were clear and easy to understand 5 Teaching aids were effective	ng 10 you.
1 2 3 4 5 1 Objective of the course is clear 2 Course contents met with your expectations 3 Lecturer sequence was well planned 4 Lectures were clear and easy to understand 5 Teaching aids were effective	
2 Course contents met with your expectations 3 Lecturer sequence was well planned 4 Lectures were clear and easy to understand 5 Teaching aids were effective	
expectations 3 Lecturer sequence was well planned 4 Lectures were clear and easy to understand 5 Teaching aids were effective	
4 Lectures were clear and easy to understand 5 Teaching aids were effective	
5 Teaching aids were effective	
Instruction	
6 Instructors encourage interaction and were helpful	
The level of the course	
Overall rating of the course 1 2 3 4 5 sting: 3 - Outcombing: 4 - Excellent: 3 - Good; 2 - Satisfactory: 1 - Not-Settsfactory	
BYGKAUL THE LECTURES WERY GOOD	

Course/Training Feedback Form

Student Feedback Form

Subject Code: ENT	06		
Name of Student:	pico	PERSON F	Roll No.: USMBJ45
We are con	stantly loci	king to improve our class	es and deliver the best training to you. You
		pestions will help us to impe	
valuations, comme	MS and super		

SL NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			1	1	
2	Course contents met with your expectations			1		\vdash
3	Lecturer sequence was well planned			1	1.	
4	Lectures were clear and easy to understand				1	
5	Teaching aids were effective					-
6	Instructors encourage interaction and were helpful					-
	The level of the course					-
	Overall rating of the course	1	,			5

*Rating: 5 - Outstanding: 4 - Excellent; J - Good: 2-Satisfactory: I - Not-Satisfactory

Suggestions if any:

THE COPPLE WAS GOOD AND WELPFUL.

ANNEXURE 6

Date: 15/4/2018

From
Dr.K.R. Jothikumar,
Dept of Otorhinolaryngology,
SLIMS
Bharath Institute of Higher Education and Research,
Puducherry.

Through Proper Channel

To
The Dean,
SLIMS,
Bharath Institute of Higher Education and Research,
Puducherry.

Sub: Completion of value-added course: Hands on training on Hearing Evaluation Using Impedance Audiometry reg.

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: **Hands on training on Hearing Evaluation Using Impedance Audiometry** on Jan 2018 to April 2018. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course. Kind Regards

Dr.K.R.Jothikumar <HOD Sign and Seal>



ANNEXURE 6









