

JSS Academy of Higher Education & Research

(Deemed to be University)

Re-Accredited "A+" Grade by NAAC

Sri Shivarathreeshwara Nagara Mysuru - 570015, Karnataka

Regulation & Syllabus

MS OTORHINOLARYNGOLOGY

2020

MS – ENT

GOAL: The goal of postgraduate training in Otorhinolaryngology is to produce a competent Otorhinolaryngologists equipped with necessary knowledge, skills and attitude to impart education, to carry out basic science research and be able to serve the community by rendering service to the subjects.

Programme Outcome (PO): Programme Educational Objectives are broad statements that describe what graduates are expected to attain within few years of completing their programme. These are based on the needs of the society as analysed and outlined by the regulatory body. So as defined by NMC, the PEO for MS Otorhinolaryngology are as follows: PO's represent broad statements that incorporate many areas of inter - related knowledge and skills developed over the duration of the programme through a wide range of courses and experiences. They represent the big picture and describe broad aspects of knowledge, skill and attitude development. They encompass multiple learning experiences.

After a period of 3 years, the resident should be able to attain the following PO's:

PO1: Practice his or her specialty efficiently and ethically, keeping in mind the requirement of the patient and maintain a good rapport with the patients.

PO2: Manage Otorhinolaryngological diseases both medically and surgically.

PO3: Manage all kinds of emergencies in Otorhinolaryngology and Head and Neck

PO4: Develop good learning and teaching skills along with communication skills with stake holders of the health care system

PO5: Take part in National Health program and take an active role in prevention and rehabilitation of Otolaryngology related diseases.

PO6: Plan and conduct a research project, plan and write a dissertation/ thesis with a fair knowledge of statistics

PO7: Demonstrate the acquisition of comprehensive knowledge of the subject, latest diagnostic and therapies available and recent advances.

PO8: Perform common Audio – vestibular tests like, Pure tone audiometry, BERA, etc.

PO9: Identify patient safety and system approach to medical errors.

PO 10: Demonstrate the ability to perform lifesaving aerosol generating procedures

and to manage suspected cases during high impact respiratory pathogen pandemic situations, ensuring safety of health care workers.

Course and Course Outcomes (CO)

COs describe the learning that will take place across the curriculum through concise statements, made in specific and measurable terms, of what students will know and /or be able to do after successful completion of each course.

There are four courses for MS OTORHINOLARYNGOLOGY:

1. Course 1 (CO1) Applied Basic science related to Otorhinolaryngology
2. Course 2 (CO2) Principles and practices of oto-rhinology.
3. Course 3 (CO3) Recent advances in otorhinolaryngology and head and neck.
4. Course 4 (CO4) General surgical principles in laryngology and head and neck.

1) Competencies, Sub - competencies and milestones

The post graduate programme is competency based, consisting of six domains of competency. Sub - competencies under these domains, specific to the specialty, have been mentioned in general terms. The progression through the curriculum is detailed in sub - competency milestone levels that direct the prescribed syllabus. These sub - competency milestones are mapped to the Entrustable Professional Activities (EPAs), identified as essential for a specialist. Formative assessment includes EPA assessment, and is carried out every quarter using appropriate tools, for identifying eligibility for transfer of trust, to the resident.

2) Domain of Competencies

The following objectives are laid out to achieve the goals of the course. These objectives are to be achieved by the time the student completes the course.

The Objectives may be considered under the subheadings

Knowledge (Cognitive domain)

Skills (Psycho motor domain)

Human values, Ethical practice and Communication abilities (Affective domain)

i) Knowledge:

1. Demonstrate understanding of basic sciences relevant to this specialty.
2. Describe etiology, pathophysiology, and principles of diagnosis and management of common problems including emergencies, in adults and children.
3. Describe indications and methods for fluid and electrolyte replacement therapy including blood transfusion
4. Describe common malignancies in the country and their management including prevention
5. Identify social, economic, environmental and emotional determinants in a given

case, and take them into account for planning therapeutic measures.

6. Recognize conditions that may be outside the area of his specialty/competence and to refer them to the proper specialist.

7. Advice regarding the operative or non-operative management of the case and to carry out this management effectively.

8. Update oneself by self-study and by attending courses, conferences and seminars relevant to the specialty.

9. Teach and guide his team, colleagues and other students.

10. Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing his work and presenting his work at various scientific fora.

ii) Skills

Take a proper clinical history, examine the patient, perform essential diagnostic procedures and order relevant tests and interpret them to come to a reasonable diagnosis about the surgical condition.

1. Perform common operative procedures in Otorhinolaryngology and Head and Neck

2. Provide basic and advanced life saving support services (BLS and ALS) in emergency situations

3. Undertake complete patient monitoring including the preoperative and post operative care of the patient.

iii) Human Values, Ethical Practice and Communication Abilities

1. Adopt ethical principles in all aspects of his/her practice. Professional honesty and integrity are to be fostered. Care is to be delivered irrespective of the social status, caste, creed or religion of the patient.

2. Develop communication skills, in particular the skill to explain various options available in management and to obtain a true informed consent from the patient.

3. Provide leadership and get the best out of his team in a congenial working atmosphere.

4. Apply high moral and ethical standards while carrying out human or animal research.

5. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.

6. Respect patient's rights and privileges including patient's right to information and right to seek a second opinion.

Course content

A) Theory

1. Basic Sciences

Anatomy of the ear; Physiology of hearing and equilibrium; Anatomy of nose and paranasal sinuses; Physiology of smell; Anatomy of pharynx and oesophagus;

Physiology of Deglutition; Anatomy of larynx and tracheobronchial tree; Physiology of respiration; Physiology of generation and reception of speech; Surgical anatomy of skull base; Cranial nerves; Imaging and Radiology pertaining to ear, nose and throat (ENT); Knowledge of Immunology and Microbiology as regarding ENT; Wound healing; Radiotherapy and Chemotherapy in Head and Neck Cancers; Principles of Laser Surgery; Basics of Anaesthesia and Intensive Care in relation to ENT; Anatomy of head and neck region including thyroid, neck spaces and salivary glands.

2. Audiology

Brief knowledge of acoustics; Use of computers in audiological and vestibular testing and rehabilitation

Epidemiology /Prevention/rehabilitation of balance and hearing disorders;

Hearing aids; Cochlear implants

Diagnostic audiometry; Diagnostic testing of vestibular system

3. Otology

Diseases of ext. auditory canal and middle ear Diseases of pinna - Acute suppurative Otitis Media - CSOM. Complications of CSOM - Plastic Surgery of ear - Otosclerosis - SN Loss in adults and children - vertigo - Meniere's disease - ototoxicity - vestibular Schwannoma - tumours of middle ear cleft - glomus jugulare - Disorders of facial nerve - Cochlear implants.

4. Laryngology and Head and Neck

Acute and Chronic infections of oral cavity, pharynx, tonsils and larynx.

Trauma and stenosis of larynx

Management of obstructed airway and tracheostomy - Disorders of voice

Neurological affections of pharynx and larynx Pharyngeal pouch Tumours of

larynx Angiofibroma and nasopharyngeal lesions

Benign and malignant tumors of Head and Neck

Tumours of oropharynx and lymphomas of head and neck, Tumours of hypopharynx

Benign diseases of the neck the thyroid gland and its disorders Diseases of

salivary gland - neoplastic and non- neoplastic Neck space infections

Tumour of infra temporal fossa and parapharyngeal space. Cysts, granulomas and tumours of jaw, nose and sinuses.

Diseases of the oesophagus; Facial Plastic Surgery and reconstructive surgery of Head and Neck

Terminal care of head and neck cancer

5. Rhinology

Radiology of Nose and Para nasal sinuses Congenital anomalies of the nose

Conditions of external nose

Abnormalities of smell Allergic rhinitis

Intrinsic rhinitis and nasal polyps

Infective rhinosinusitis / Complication and surgical management Disorders and trauma of facial skeleton

Disorders of nasal septum CSF rhinorrhoea

Epistaxis

Snoring and sleep apnea

Chronic granulomatous diseases of nose and PNS The orbit in relation to ENT

Transphenoidal hypophysectomy

Overview of facial pain and headache Tumours of Nose and PNS

Suggested Teaching-Learning methods

Lectures / group discussions

Self-directed learning and Assignments

B) Practical / Clinical

Mandatory: Cadaveric Dissection of Head and Neck and 5 temporal bone dissection which includes:

1. Cortical mastoidectomy
2. MRM and Radical mastoidectomy
3. Facial nerve decompression
4. Posterior tympanotomy
5. Labyrinthectomy
6. Endolymphatic sac decompression
7. Translabyrinthine approach to Internal auditory meatus
8. Stapedotomy
9. Cochleostomy

Skills to be Acquired

Essential list of Surgical Procedures

Perform independently (PI)

Performed with Assistance (PA)

Observed (O)

Assisted Operating Surgeon (A).

Otology

	Procedure	Number			
		O	A	PA	PI
EAR	Cortical mastoidectomy	-	-	-	5

	MRM	-	-	3	2
	Radical Mastoidectomy	-	-	-	1
	Myringoplasty	-	-	-	5
	Myringotomy and grommet insertion	-	-	-	5
	Ossiculoplasty		-	-	1
	Facial N Decompression	-	-	-	Optional
Rhinology					
	Reduction of fracture nasal bones	-	-	-	1
	Septoplasty	-	-	-	7
	Diagnostic nasal endoscopy	-	-	-	15
	FESS	-	-	-	6
	a. Uncinectomy		-	-	2
	b. Polypectomy	-		-	2
	c. Anterior ethmoidal cell clearance	-	-	-	2

	d. Middle meatal antrostomy	-	-	-	2
	e. Caldwell Luc	1	-	-	-
	FESS – Post ethmoid/sphenoid/ frontal sinus surgery	10	-	2	-
	Maxillo facial surgeries	√	-	-	-
	External operations of frontoethmoid sinus	1	-	-	-
	Maxillectomy – Total	1	-	-	-
	Partial	1	-	-	-
Laryngology and Head and Neck					
	Tracheostomy	-	-	-	5
	Tonsillectomy	-	-	-	10
	Adenoidectomy	-	-	-	5
	DL Scopy	-		15	10
	Oesophagoscopy/ Upper oesophagus foreign body removal	-	-	5	2
	Bronchoscopy	√	1	-	-

	Total/Partial Laryngectomy	√	1	-	-
	Block dissections of neck	√	2	-	-
	Thyroid surgery	√	1	2	-
	Salivary gland surgery	√	2	-	-
	Microlaryngeal surgery	√	5	2	-

TEACHING & LEARNING METHODS

1. Didactic lectures

- Attend UG theory classes during first year

2. Teaching sessions

	ACTIVITY	FREQUENCY	MODERATOR
1.	SEMINAR	Twice in a week	Faculty
2.	JOURNAL CLUB	Once in a week	Faculty
3.	REVIEW ARTICLE	Once in 3 months	Faculty
4.	SYMPOSIA	Once in 6 months	Faculty

The post graduate students should actively participate in departmental seminars and journal club. A record showing the involvement of the student shall be maintained and also in the PG diary.

3. Undergraduate teaching

- Postgraduate students shall participate in teaching undergraduate students.
- The student shall participate in generating teaching resource material for UG and develop problem solving modules.

Theory

1. Basic Sciences Anatomy of the ear; Physiology of hearing and equilibrium; Anatomy of nose and paranasal sinuses; Physiology of smell; Anatomy of pharynx and oesophagus; Physiology of Deglutition; Anatomy of larynx and tracheobronchial tree; Physiology of respiration; Physiology of generation and reception of speech; Surgical anatomy of skull base; Cranial nerves; Imaging and Radiology pertaining to ear, nose and throat (ENT); Knowledge of Immunology and Microbiology as regarding ENT; Wound healing; Radiotherapy and Chemotherapy in Head and Neck Cancers; Principles of Laser Surgery; Basics of Anaesthesia and Intensive Care in relation to ENT; Anatomy of head and neck region including thyroid, neck spaces and salivary glands.

2. Audiology Brief knowledge of acoustics; Use of computers in audiological and vestibular testing and rehabilitation Epidemiology /Prevention/rehabilitation of balance and hearing disorders; Hearing aids; Cochlear implants Diagnostic audiometry; Diagnostic testing of vestibular system

3. Otolaryngology Diseases of external auditory canal and middle ear Diseases of pinna - Acute suppurative Otitis Media - CSOM. Complications of CSOM - Plastic Surgery of ear - Otosclerosis - SN Loss in adults and children - vertigo - Meniere's disease - ototoxicity - vestibular Schwannoma - tumours of middle ear cleft - glomus jugulare - Disorders of facial nerve - Cochlear implants.

4. Laryngology and Head and Neck Acute and Chronic infections of oral cavity, pharynx, tonsils and larynx. Trauma and stenosis of larynx Management of obstructed airway and tracheostomy - Disorders of voice Neurological affections of pharynx and larynx Pharyngeal pouch Tumours of larynx angiofibroma and nasopharyngeal lesions Benign and malignant tumours of Head and Neck Tumours of oropharynx and lymphomas of head and neck, Tumours of hypopharynx Benign diseases of the neck The thyroid gland and its disorders Diseases of salivary gland - neoplastic and non- neoplastic Neck space infections Tumour of infra temporal fossa and parapharyngeal space. Cysts, granulomas and tumours of jaw, nose and sinuses. Diseases of the oesophagus; Facial Plastic Surgery and reconstructive surgery of Head and Neck Terminal care of head and neck cancer

5. Rhinology Radiology of Nose and Para nasal sinuses Congenital anomalies of the nose Conditions of external nose Abnormalities of smell Allergic rhinitis Intrinsic rhinitis and nasal polyps Infective rhinosinusitis / Complication and surgical management Disorders and trauma of facial skeleton Disorders of nasal septum CSF rhinorrhoea Epistaxis Snoring and sleep apnea Chronic granulomatous diseases of nose and PNS The orbit in relation to ENT Transphenoidal, hypophysectomy Overview of facial pain and headache Tumours of Nose and PNS

Teaching - Learning Activities Monitoring the learning process (Formative Assessment): It shall be monitored each student through continuous appraisal and regular assessment. The methods used consist of a logbook which records participation in various teaching /learning activities by the students. The participation of students is assessed using a check list that assesses various aspects (Annexure 1). The logbook shall be periodically checked (weekly /fortnightly) by the teachers.

1. Lectures: Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated. a) Didactic Lectures: Recommended for selected common topics for post graduate students of all specialties. Few topics are suggested as examples: 1. Bio-statistics 2. Use of library 3. Research Methods 4. Medical code of Conduct and Medical Ethics 5. National Health and Disease Control Programme 6. Communication Skills etc. These topics may preferably taken up in the first few weeks of the 1st year. b) Integrated Lectures: These are recommended to be taken by, multidisciplinary teams for selected topics, e.g. Jaundice, Diabetes mellitus, Thyroid etc.

2. Journal club: Shall be held once a week. Every student must make a presentation from the allotted journal (s), selected articles at least four times a year and a total of 12 seminar

presentation in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment.

3. Subject Seminar: Shall be held once a week. Every student must present on selected topics at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment.

4. Dissection Head and Neck Temporal bone dissection which includes: Cortical mastoidectomy. MRM and Radical mastoidectomy, Facial nerve decompression, Posterior tympanotomy Labyrinthectomy, Endolymphatic sac decompression, Individual Bones of Head and Neck 23 Cadaveric Dissection of Head and Neck and 5 temporal bones dissection which includes: Cortical mastoidectomy MRM and Radical mastoidectomy Facial nerve decompression Posterior tympanotomy Labyrinthectomy Endolymphatic sac decompression Translabyrinthine approach to Internal auditory meatus Stapedotomy Cochleostomy

5. Ward Rounds: Ward rounds may be service or teaching rounds. Service Rounds: Post graduate and Interns shall do service rounds every day. Newly admitted patients should be worked up by the Postgraduates and presented to the staff the following day. Teaching rounds: Every unit shall have 'grand rounds' for teaching purpose. A diary should be maintained for day-to-day activities by the students.

6. Clinico-pathological conference: Shall be held at least once in three months for all post graduate students. Presentation shall be done by rotation. If cases are not available, it could be supplemented by published CPCs.

7. Clinical cases: A minimum of 40 cases shall to be presented, which will be assessed by using check lists.

8. Inter-departmental Meetings: Shall be held with departments of Pathology and Radio-Diagnosis at least once a week. Radio-diagnosis: Interesting cases and the imaging modalities should be discussed. These meetings shall be attended by all post graduate students.

9. Teaching Skills: Post graduate students must teach under graduate medical, nursing, paramedical students by taking demonstrations, bed side clinics, tutorials, lectures etc. Training of post graduate students in Educational Science and Technology is recommended.

10. Continuing Medical Education Programmes (CME): Recommended that at least state level CME programmes should be attended by each student in 3 years.

11. Conferences: Post graduate student should attend two National/state conference. Post graduate student should present one poster, read one paper at a national/state conference and presented one research paper which should have been published /accepted for publication /sent for publication during the period of his postgraduate studies Teaching / Learning activities:

Rotation Posting in other Department

1. Neurosurgery 4weeks
PG Student should learn how to recognize, investigate the intracranial complications of ENT. He should observe the neurosurgical procedures for these complications.
2. Head & Neck Oncology 2 weeks
PG Student should learn the protocols for chemo and radiotherapy for head and neck cancer. He should observe extensive procedures for advanced head and neck cancers.
3. Anaesthesia 2weeks
PG Student should learn the common anesthetic procedures, know about the properties, dosage and side effects of common anesthetic drugs, learn to intubate and manage critically ill patients.
4. Speech & Hearing 2 weeks
PG Student should learn about advanced audiological investigations particularly in relation to congenitally deaf children. He should acquaint himself with common speech therapy procedures.
5. Plastic Surgery 2weeks

ASSESSMENT

A) FORMATIVE ASSESSMENT

Formative assessment will be done continually to assess medical knowledge, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.

- Periodic Internal Assessment will be conducted frequently covering all domains of learning and feedback will be provided for improvement of the student.

B) SUMMATIVE ASSESSMENT

1. Dissertation Work

During the course of study every candidate has to prepare a dissertation individually on selected topic under the direct guidance and supervision of a recognized post graduate teacher.

The suggested time schedule for dissertation work is:

- Identification and selection of topic for dissertation - in first 4 weeks.
- Preparatory work for dissertation /synopsis including pilot study if necessary and submission of the synopsis to the University within first 6 months from the beginning of course or as per the dates notified by the University.
- Data collection for dissertation. Writing the dissertation in the following 1½ years.
- Submission of the dissertation six months prior to the final examination or as per the dates notified by the University.

Registration of dissertation topic

Every candidate shall submit a synopsis in the prescribed proforma of the University for registration of dissertation topic. Subject of dissertation will be scrutinized by the PG training cum research committee and ethical committee of the institution. The synopsis shall be sent within first 6 months from the commencement of course as notified in the University calendar of events, to the Registrar (Academic).

Submission of dissertation

The dissertation shall be submitted to the Registrar (Evaluation) of the University six months before final examination or as per the dates notified by the University. Approval of the dissertation by the panel of examiners is a pre-requisite for a candidate to appear in the University examination.

Summative Assessment:

The examination for M.D shall be held at the end of 3rd academic year. It will be 3 parts- Thesis, Written exam and Practical with Viva Voce. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole.

Essential pre-requisites for appearing for examination include:

1. **Log book** of work done during the training period including rotation postings, departmental presentations, and internal assessment reports should be submitted.

2. At least **two presentations** at national level conferences. One research paper should be published / accepted in an indexed journal.

University Examination pattern:

Scheme of Examination (Summative Assessment):

M.S. (Otorhinolaryngology) degree examination shall be held at the end of three academic years and shall consist of dissertation/thesis, written papers (Theory), clinical and viva voce.

Note: Satisfying all the pre requisites as indicated in Chapter 1 is a must to appear for the University examination. (See 15.2.1 in chapter I)

A. Written Papers (Theory): (Total Marks - 400)

- Shall consist of four question papers, each of three hours duration, each of

100 marks.

- Each paper shall consist of TWO long essay questions of 20 marks each and SIX short essay questions of 10 marks each.

- **The of distribution of topics for each paper shall be as follows:**

Paper I: Basic Sciences 100 Marks
Anatomy, physiology and other basic
science topics covered in syllabus

Paper II: Rhinology including recent advances 100 Marks

Paper III: Otology including recent advances 100 Marks

Paper IV: Laryngology and pharyngology and 100 Marks
broncho-oesophagology and head and neck
including recent advances

Total 400 Marks

Note:

- Strict division of topics may not be possible and some overlapping is inevitable.
- Questions on recent advances may be asked in any or all the papers.

ii) Clinical Examination: Total 200 Marks

Long case – One 80 Marks

Short cases - Three of 40 Marks each 120 Marks

Total 200 Marks

1. Viva – Voce Examination 100 Marks

Viva – Voce: This shall test student's comprehension, analytical 80 Marks
approach, expression and interpretation of data. It includes all
components of course contents. In addition the students shall be
given case reports, charts, gross specimens, Histo pathology slides,
X-rays, ultrasound, CT scan images, MRI scan images Temporal bone dissection,
etc., for interpretation. Questions on operative surgery and use of
instruments will be asked. It includes discussion on dissertation
also.

2. Pedagogy exercise: 20 Marks

A topic be given to each candidate in the beginning of clinical
examination. He/she is asked to make a presentation on the topic
for 8-10 minutes

Theory	Clinical	Viva-voce	Total
400 Marks	200 Marks	100 Marks	700 Marks

Recommended books and Journals:

Books

1. Scott Brown: Otorhinolaryngology and Head & Neck Surgery, Buterorth and Co Ltd (6 volumes)
2. Cummins: Otorhinolaryngology, Head and Neck Surgery, Mosby (5 volumes)
3. Rob and Smith: Operations – Surgery pertaining to ENT
4. Paperalla: Otolaryngology (4 Vol Set) W B Saunders company.
5. Logan and Turner: Diseases of ENT, Wright / Varghese.
6. Lore Atlas of Head and Neck Surgery, W.B Saunders company.
7. Shambagh/Glasscock: Surgery of the Ear, W.B. Saunders company.
8. Ballenger Snow Jr: Otorhinolaryngology and Head and Neck Surgery, Williams and Wilkins
9. Anirbhan Biswas : Audiology and Vestibulometry, B alani Publishing House, Mumbai.
 - i. GeraldEnglish-Otolaryngology.Publishers:Lippencott-Roven,Philadelphia/New york
 - ii. Stammberger- Endoscopic Sinus Surgery. Publishers: W.B.Saunders Co.
 - iii. Stell& Maran- Head & NeckSurgery.5 Edn. Publishers: Oxford UniversityPress
 - iv. Eugene Meyers-Head & Neck Surgery. Publishers: W.B.SaundersCo
 - v. David.W.Kennedy-Diseases of the Sinuses, Diagnosis and management ,2001
 - vi. Robert Sataloff- Laryngology

Journals:

1. The Laryngoscope – Lippincott Williams and William
2. Indian Journal of Otolaryngology and Head and Neck Surgery

3. Annals of Otology, Rhinology, Laryngology – Annals Publishing Co.
4. Archives of Otorhinolaryngology
5. British journal of Otolaryngology
6. Indian Journal of Otology
7. Recent advances in Otorhinolaryngology – Mosby
8. The Otolaryngology Clinics of North America – WB Saunders company
