



SRM
UNIVERSITY
(Under section 3 of UGC Act 1956)



MS E.N.T

Curriculum and Syllabus 2015

Branch Code: 54

SRM Medical College Hospital & Research Centre

SRM University

SRM Nagar, Kattankulathur

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M.S (Oto -Rhino -laryngology & Head and Neck Surgery)-E.N.T.

1. GOAL

A post-graduate student in Oto-Rhino-Laryngology should be able to diagnose and treat efficiently and ethically the common Ear, Nose and Throat related illness seen in community. In addition he/she should recognize and properly manage basic medical diseases and all kinds of diseases related to Ear, Nose, Throat, Head and Neck. He/she should be aware of all the recent advances and on-going studies pertaining to his/her specialty as well as the national programmes involving the specialty of E.N.T. He/ she should contribute to the community by training and implementing the preventive measures for certain diseases under his specialty. The PG student should be competent enough to teach medical and paramedical students skillfully to make them understand the subject and conduct research work.

OBJECTIVE

A. GENERAL OBJECTIVES

At the end of three years of post-graduate training, the student should have:

- Fair knowledge about the basic medical ailments related to specialty.
- Practice their profession efficiently and ethically.
- Develop skills to maintain rapport with the patients.
- Take part in National health programs and take active role in prevention and rehabilitation of ENT related diseases.
- Develop basic teaching skills and be competent enough to work as a junior level teacher in educational institutes.

B. SPECIFIC OBJECTIVES

- They should obtain adequate knowledge in basic sciences like Embryology, Anatomy, Physiology, Biochemistry, Micro-biology and general surgical principles related to Oto-Rhino-Laryngology.
- He/ she should have proper understanding of patho-physiology of most of the illnesses related to the specialty.
- They should not fail to recognize and properly diagnose the ailments pertaining to ENT and also other common health problems of community.

- He/she should gain adequate skills to individually manage ENT diseases both medically and surgically as per the need.
- They should manage all kinds of emergencies in Oto-Rhino-Laryngology, head and neck independently keeping in the mind the limitations existing in his place of work.
- They should be able to perform common audio-vestibular tests like Pure Tone Audiometry, Impedence Audiometry, BERA, Cold Caloric Test, Positional tests, etc.
- He/she should learn basic methodology in teaching medical and paramedical students in productive manner.
- He/she should keep a track of current developments in the field of ENT.
- They should be able to conduct research works, keep proper records and prepare reports and presentations of the same.
- They should have basic knowledge about Biostatistics.

2. COURSE OVERVIEW

Duration of the course

The period of certified study and training for the post graduate MS ENT shall be three academic years (Six academic terms). The academic terms shall mean six months training period.

Commencement of Academic session

The academic session for the postgraduate shall commence from May/ June of the academic year.

Date of examination

The students admitted up to May/ June of the academic year shall be registered for that academic year and shall take up their final third year regular examination in April/October of the academic year after completion of 3 years/36 months.

Number of examinations

The university shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

Attendance

All students joining the postgraduate training programme shall work as full time residents during the period of training, attending not less than 80 % (eighty percent) of training during each calendar year, and will be given full time responsibility, assignments and participation in all facets of the educational process.

The period of training for obtaining the degrees shall be three completed years including the period of examination.

Training Programme (Orientation programme):

- Attending PG orientation programme (covering the main teaching methods, issues relating to establishing rapport with the patients, Ethical issues involved in rendering the patient care services, research methodology)
- Care of indoor patients along with pre-operative and post-operative care under guidance of seniors.
- Taking case-history, working up indoor cases, writing admission and discharge summaries.
- Doing wound care and tracheostomy care in wards.
- Performing Minor-OT procedures in OPD.
- Attending emergency and referral calls under the supervision of Senior Resident/Tutor/Lecturer.
- Attending elective and emergency OT for acclimatization.
- Attending ward rounds and assisting in carrying out the instructions by senior staff.
- Attending Out Patient Department patients under the supervision of seniors.

- Keeping records and maintenance of ward, OPD, OT and emergency statistics.
- Preparation of Thesis protocol and getting it approved by the PG thesis committee and the Ethical committee of the concerned Institute.
- Posting in other related disciplines like Neurosurgery, Radiotherapy, Plastic surgery and Anesthesia. (Preferably during the 1st year of the course.)

After 6 months to the end of the course:

- Presenting indoor patients in ward rounds 4days a week.
- Attending OPD patients 4days a week.
- Attending elective OT 2days a week.
- Doing emergency duties of 24hr duration by rotation among all residents.
- Presenting seminars, journals, cases on rotation basis.
- Attending cancer clinics and planning the management.
- Ensuring proper management of indoor patients and proper record keeping by juniors.
- Attending mortality meetings, Central Academic programmes and other guest-lectures organized by institute.
- Taking clinical classes for undergraduate students posted in ENT.
- Properly carrying out thesis work and submitting in scheduled time.
- Taking interest in research work, publishing review articles / case reports in journals
- Attending conferences and work-shops.
- Maintaining a Log Book (to be verified by the supervisory staff periodically)

3.THEMES AND TOPICS

Components of the Postgraduate curriculum

- Theoretical of the postgraduate curriculum
- Practical and clinical skills.
- Thesis skills.
- Attitudes including communication skills.
- Training in research methodology.

TRAINING PROGRAMME

- The training given with due care to the postgraduate students in the recognized institutions for the award of M.S ENT degree shall determine the expertise of the specialist produced as a result of the educational programme during the period of stay in the institution.
- All students joining the postgraduate training programme shall work as full time residents during the period of training, attending not less than 80 & (eighty percents) of the training during each calendar year , and given full time responsibility, assignments and participation in all facets of the educational process.
- Every institution undertaking postgraduate training programme shall set up an academic cell or a curriculum committee, under the chairmanship of a senior faculty member., which shall work out the details of the training programme in each specialty in consultation with other department faculty staff and also specialty in consultation with other department faculty staff and also coordinate and monitor the implementation of these training programmes.
- The training programmes shall be updated as and when required, the structured training programme shall be written up and strictly followed, to enable the examiners to determine the training undergone by the students and medical council of India inspectors to assess the same at the time of inspection.
- Postgraduate students shall maintain programme undergone during the period of training.
- During the training for degree to be awarded, there shall be proper training in basic medical science related to the disciplines concerned; during the training for the degree to be awarded in basic medical sciences, there shall be training in allied subjects related to the discipline concerned. In all postgraduate training programmes, both clinical and basic medical sciences, emphasis to be laid on preventive and social aspects.
- The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

- Training in medical audit, management, health economics, health information system, basics of statistics, exposure to human behavior studies, knowledge of Pharmaco-economics and introduction to non-linear mathematics shall be imparted to the postgraduate students.
- Implementation of the training programmes for the award of various postgraduate degree shall include the following:-

(i) **BASIC MEDICAL SCIENCES**

Lectures, seminars, journal clubs, group discussions, participation in laboratory and experimental work, and involvement in research studies in the concerned specialty and exposure to the applied aspects of the subjects relevant to clinical specialties.

(ii) **CLINICAL DISCIPLINES**

In-services training with the students benign given graded responsibility in the management and treatment of patients entrusted to their care; participation in seminars, journal clubs, group discussions, clinical meetings, grand rounds and clinical-pathological conferences; practical training in diagnosis and medical and surgical treatment; training in the basic medical sciences, as well up of all cases and presentation to the consultants.

This includes all the special clinics

- Vertigo Clinic
 - Cancer related OP
 - Headache Clinic
 - Allergic Clinic
- And
- Documentation, OPD card and register completion and maintenance.

Indoors:

OP and emergency

Ward:

- History and work up of all cases. Daily evening rounds and attending to emergencies whenever need arises.
- Preparation of weekly, monthly and annual statistics.

4. DETAILED SYLLABUS

a. Theory

Section I:

- **Embryology:** Development of Ear (External ear, Middle ear cleft, Inner ear); Development of nose and paranasal sinuses; Development of oral cavity, pharynx, larynx, trachea and esophagus; Development of Thyroid, Parathyroids, Salivary glands, pituitary; Branchial arches
- **Anatomy:** Osteology of Frontal, Parietal, Temporal, Occipital, Sphenoid, Ethmoid, Lacrimal, Nasal bones; Anatomy of ear (external ear, middle ear, inner ear, central auditory and vestibular pathways); Anatomy Nose, Paranasal sinuses and Orbit; Anatomy of oral cavity, pharynx, larynx, trachea and esophagus; Anatomy of neck including Parapharyngeal spaces and Retropharyngeal spaces; Temporal fossa and Infratemporal Fossa; Anatomy of Salivary glands; Anatomy of Thyroid, Parathyroid, Pituitary; Anatomy of Skull base; Anatomy of cranial fossa including Cerebello-pontine angle.
- **Physiology:** Perception of sound; Physiology of Equilibrium; Physiology of Nose and Paranasal sinuses; Physiology of smell; Physiology of ear and Nose during flight and diving; Physiology of salivary glands; Physiology of Speech; Physiology of Respiration; Physiology of Deglutition.
- **Radiology:** General radiologic principles (Plain skiagram, Contrast skiagram, CT, MRI, USG); Radiology of Ear; Radiology of Nose, Paranasal sinuses and Orbit; Radiology of Neck; Radiology of Skull Base; Radiology of Brain.

- **Pharmacology of drugs commonly used in ENT:** Pharmacokinetics, Pharmacodynamics and adverse effects of Antihistaminics, Decongestants, Steroids (especially Topical), Antimicrobial agents, Cancer Chemotherapeutic agents, Antifungals, Antivertigenous drugs, NSAIDs, Electrolyte and fluids.
- **Biochemistry:** Fluid and electrolyte balance, Biochemistry of Perilymph, Endolymph, CSF, etc.
- **Other applied basic sciences like Allergy and Immunity related to ENT;** Microbiology in relation to ENT; Principles of Cancer immunology; Principles Radiotherapy in Head & neck cancer; Hematology in relation to ENT; Regional anesthesia and general anesthesia in relation to ENT; Routine biochemical investigations; Principles of nuclear medicine; Photodynamic therapy.

Section II :(Otology, Neuro-otology and Audiovestibulometry)

- **Otology:** Symptoms (otalgia, tinnitus, vertigo, deafness) and signs related to ear diseases; Clinical examination of the ear; Pathophysiology of inflammatory conditions of ear; Patho-physiology of inner ear diseases; Infection of external ear, tumors of external ear, congenital EAC atresia and other diseases of external ear; Ear trauma (external, middle and inner ear); reconstructive surgery of ear; Serous otitis media; Acute suppurative Otitis media; Chronic suppurative Otitis media (Tubotympanic and Atticoantral with special reference to Cholesteatoma); Complications of Suppurative otitis media; Otosclerosis; Deaf child; Genetics of hearing; Glomus tumors; Disorders of Facial nerve; Temporal bone disorders including malignancy; CSF Otorrhoea; Oto-endoscopy; Tympanoplasty; Various types of Mastoidectomy; Facial nerve surgeries; Surgeries for Glomus tumors; Temporal bone resection; Stapes surgeries.
- **Neuro-otology:** Vertigo (Etiology, Pathophysiology, Classification, Investigation, Treatment and Rehabilitation); Tinnitus (Etiology, Pathophysiology, Investigations and Management); BPPV; Vertebro-

basilar insufficiency; Meniere's disease; CPA tumors; Inflammatory lesions of Auditory and Vestibular nerve; Presbycusis and other SNHL; Sudden onset SNHL, Noise induced hearing loss; Oto-toxicity; Rehabilitation of Deaf patients including BAHA, Cochlear implantation, Brainstem implantation.

- **Audiology:** Pure Tone Audiometry; Impedance Audiometry; Tone-decay; SISI; ABLB; Other tests for recruitment; Tests for Functional deafness; Speech Audiometry; Auditory Evoked Response Audiometry; Bekesy Audiometry; Oto-acoustic emissions; Electro-cochleography; Assessment of Deaf child.
- **Vestibulometry:** Clinical tests like Positional tests, Gaze test; Romberg's test; Stepping test; Craniocoprography; Electronystagmography; Posturography.

Section III: (Nose, Throat, Head & Neck Surgery)

- **Nose:** Signs and symptoms of nasal diseases; Facial pain and Headache Examinations of nose; Diseases of external nose; Facial trauma; Congenital diseases of Nose; Aesthetic surgeries of Nose (Rhinoplasty); Nasal septum; Septal correction surgeries (Septoplasty); Foreign bodies of nose; Rhinolith; Myiasis; Epistaxis; Pathology of smell; Allergic rhinitis; Vasomotor rhinitis; Acute and chronic inflammatory conditions of nose; Nasal Polyposis; Tumors of Nose; Granulomatous disease of Nose.
- **Paranasal Sinuses:** Acute and chronic sinusitis; fungal sinusitis; Complications of Sinusitis; Tumors of Paranasal sinuses; Antral Lavage; Cald-Wel Lucs surgery; External Ethmoidectomy; Various Maxillectomies; Frontal sinus surgeries; Lateral Rhinotomy; Mid-facial degloving; Craniofacial surgeries; Endoscopic sinus surgery.
- **Others:** Obstructive sleep apnea; CSF Rhinorrhoea; Trans-sphenoidal hypophysectomy; Orbit in relation to ENT; Optic nerve in relation to ENT.

- **Throat:** Signs and symptoms of throat disorders; Examination of throat; Endoscopy of upper aero-digestive tract; Disorders of Oral cavity, Acute and chronic tonsillitis; Adenoids; Acute and chronic pharyngitis; Acute and chronic laryngitis; Disorders of Speech and Voice; Upper airway obstruction and management including Tracheostomy; Trauma of larynx; Stenosis of larynx; Congenital lesions of larynx; Laryngocele; Vocal cord paralysis; Neurological disorders of Pharynx; Pharyngeal Diverticulum; Benign and Malignant tumours and tumor like conditions of oral cavity, oropharynx, hypo-pharynx and larynx; Phonosurgery; Laryngectomies; Pharyngectomies; Surgeries of Oral cavity and Oropharynx with reconstruction.
- **Nasopharynx:** Clinical examination; Nasopharyngeal Angiofibroma; Tumors of Nasopharynx; Various approaches to Nasopharynx.
- **Esophagus:** Dysphagia; Foreign body; Tumors.
- **Head & Neck:** Acute and Chronic cervical lymphadenopathy; Benign neck disease; Metastatic neck diseases; Neck dissection; Diseases of Thyroid gland; Thyroidectomy; Inflammatory diseases of Salivary glands; Benign and Malignant salivary gland tumours; Parotidectomies; Submandibular gland surgeries; Infections of Para-pharyngeal space and Retropharyngeal space; Tumors of Para-pharyngeal space and Infra-temporal fossa; Approaches to Para-pharyngeal space and Infra-temporal fossa; Diseases of jaw; Mandibulectomies; Reconstructive surgery of Head & Neck.

Section IV: (Recent advances including Genetics and Basic Surgical principles)

- **Recent advances:** Recent developments in diagnosis, pathogenesis and treatment of ENT disorders; Advances in skull base surgery; Advances and applications of endoscopic sinus surgery and Oto-endoscopy; Laser in relation to ENT; Cochlear implantation and Brainstem implant; Phonosurgery; Radiofrequency ablation; Harmonic scalpel; Cryosurgery; Role of Oncogenes in Head and Neck cancers, Cholestatoma and other ENT disorders; Gene therapy and immune therapy in relation to ENT;

Recent advances in cancer chemotherapy; Robotic surgery; IMRT (Intensity Modulated Radiotherapy); Image guided surgery; Facial nerve stimulators; SPECT (Single Positron Emission Computerized Tomography), PET (Positron Emission Tomography), CTA (CT Angiography), MRI (Magnetic Radiation Imaging) and MRA (Magnetic Radiation Angiography).

- General surgical principles: Basic surgical techniques; Suture materials in surgery; Sterilization techniques; Wound healing; Burns; Initial management of Polytrauma cases; Shock and fluid management; Blood transfusion.

b. Practical

Training in history taking and examination of all major cases in ENT particularly chronic otitis media of both tubo tympanic and attico andral diseases carcinoma of oropharynx nasopharynx, laryngopharynx and paranasal sinus , neck swelling.

EXPECTED SURGERIES TO BE PERFORMED BY MS PG'S:-

- Adenoidectomy
- Tonsillectomy
- Traheostomy
- Myringotomy
- Grommet insertion
- Myringoplasty
- Tympanoplasty type 1,2,3.
- Anterior tympanoplasty
- Stapedectomy
- Cortical mastoidectomy
- Submucous resection of nasal septum
- Septoplasty
- Septorhinoplasty
- Endoscopic sinus surgery
- Lateral Rhinotomy

- Medical maxillectomy
- Endoscopic DCR
- Endoscopic sphenoidectomy
- Endoscopic orbital decompression
- Endoscopic optic nerve decompression
- Preauricular sinus closure
- Sistrunck operation Direct laryngoscopy microlaryngeal surgery
- Bronchoscopy
- Oesophagoscopy
- Carotid artery ligation
- Laryngofissure
- Rhinosporitiosis excision
- Nasal polypectomy
- Endoscopic ethmoidectomy
- Young operation
- Percutaneous tracheostomy

MAJOR SURGERIES TO BE ASSISTED:-

- Total maxillectomy
- JNA excision
- Total laryngectomy
- T.E.P
- Phonosurgery
- Saccus surgery
- Cochelear implant
- Skull base surgery
- Radical/modified radical neck dissection
- Branchial cyst excision
- UPPP
- Plastic reconstruction
- Laser surgery

MINOR SURGICAL PROCEDURES:-

- FB removal ear, nose, throat, oesophagus and bronchus
- Nasal packing
- Antral lavage
- Micro -otoscope
- Diagnostic nasal endoscopy (D.N.E)
- Pyriform fossa block
- Nerve blocks
- Drainage of quinsy
- Endotracheal intubation
- Tracheal toilecting
- Biopsy in the ear, nose, throat oesophagus, larynx bronchus and neck
- Nasal bone fracture reduction
- Intratympanic medication
- Intracostal drainage
- Feeding tube insertion

OTHER PROCEDURES:-

- Pure tone audiometry
- Impedance Audiometry
- E.N.G
- Calorigram
- Epile's manouever
- BERA
- Hearing aid trails
- Clinical photography

POSTINGS INCLUDING ALLIED SPECIALITY DEPARTMENTS:

First year:

1. Radio Diagnosis - 15 days
2. Ophthalmology - 15 days
3. Neuro Surgery - 1 months

4. Anesthesia	-	1 months
5. Paediatrics ENT	-	15 days
6. Plastic surgery	-	15 days
7. Facio Maxillary Surgery	-	1 months
Total	-	5 months
ENT	-	7 months

Second Year:

1. Radio Therapy	-	15 days
2. Surgical Oncology	-	1½ month
3. Audiology	-	15 days
4. Speech Therapy	-	15 days
Total	-	3 months
ENT	-	9 months

Third Year:

1. ENT	-	12 months
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TEACHING SCHEDULE FOR POSTGRADUATES

Teaching methods:-

- Bedside rounds by faculty members.
- Seminars /Group discussions/Symposia on important topics once a week.
- Journal clubs: Discussion of at least one important journal each from Otology, Rhinology and Laryngology / Head & Neck once a week.
- Case presentations: Discussion of one important major case at least once a week.
- Discussing complicated cases with senior members in OPD.
- Surgical training in operation theatre.
- Cadaveric Temporal bone dissection.
- Discussion of common important topics in Scientific Society meetings / Central academic programmes / Clinico-pathologic meetings..
- Detailed discussion of death cases in monthly mortality meetings held by institute.
- Biostatistics classes.

SEMINAR TOPICS:

- ENT Manifestations of rhinosporidiosis and modern approaches of managing them.
- Presentations of Juvenile nasopharyngeal Angio fibroma and their management –recent concepts.
- Changing concepts in tympanoplasty.
- Role of biofilms in ENT infections.
- Modern trends in tracheostomy.
- Principles in the reduction of co-morbidities during endoscopic sinus surgery.
- Role of immunology and gene-therapy in head and neck malignancies.
- Principles and techniques in endoscopic frontal sinus surgery.
- Modern gadgets in knifeless ENT surgery.
- Traditional VS recent concepts in Stapedectomy.
- Recent concepts in the principles and control sinonasal allergy.
- A review of presentations and management of fungal infections of nose and paranasal sinuses.
- Presentations of Neurological lesions of vocal cord and their management.
- Micro-debrider.
- Role of Otolaryngologist in O.S.A.
- Assessment and management of multiple injuries in ENT.
- Implantable hearing aids.
- Recent advances in the diagnosis and management of vertigo.
- Facial nerve paralysis and otological surgeries.
- Dysphonia and phonosurgery.
- Cholesteatoma.
- Benign lesions of the larynx.
- Granulomas of nose and PNS.
- Neck space infections.
- Parapharyngeal tumors.
- Acoustic neuroma.
- Approaches to Pterygo –palatine fossa.

- Conservative laryngeal surgeries.
- Malignant tumours of larynx.
- Recent trend in Radiotherapy and chemotherapy in head and neck malignancies.

5.MAINTENANCE OF LOGBOOK

Every Post Graduate student shall maintain a record of skills He/She has acquired during the three years training period certified by the various Head of departments where He/She has under gone training including outside the institution as follows

1. Bedside clinics /Ward rounds
2. Clinical meeting /Practical demonstration
3. Subject seminars
4. Journal club
5. Subject symposia
6. Clinic - Pathological conferences
7. Teaching by the postgraduate students
8. CME programme
9. Workshop /Conferences - Local, National, International. National seminars
10. Diagnostic and operative procedure performed
11. Miscellaneous
12. Interesting cases

The Head of the Department should scrutinize the log book every three months and certify the work done.

At the end of the course the student should summarise the contents and get the logbook certified by the Head of the Department and submit the log book at the time of the University Practical Examination for the scrutiny of the board of examiners.

5.1 It is preferable that a post graduate student during the course to present one poster presentation and /or to read one paper at a national /state conference and /or to present one research paper which can be published/accepted for publication/sent for publication during the period of his/her postgraduate studies.

6. THESIS

Every student shall carry out work an assigned research project under the guidance of a recognized post graduate teacher, the result of which shall be written up and submitted in the form of a thesis.

Work for writing the thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis shall be submitted at least six months before the theoretical and clinical /practical examination.

The thesis shall be a bound volume of a minimum of 50 pages and not exceeding 75 pages of typed matter (double line spacing and on one side only) excluding certification, acknowledgements, annexure and bibliography.

Thesis should consist of

- Introduction
- Review of literature
- Aims and objectives
- Material and methods
- Result
- Discussion
- Summary and conclusion
- Tables
- Annexure
- Bibliography

Four copies of thesis shall be submitted six months prior to the commencement of the examinations on the date prescribed by the Controller of examinations of this university. The thesis should be approved by the Professor of that branch and the same has to be forwarded to the Controller of Examinations, by the head of the department through the Dean of the college.

Two copies in addition are to be submitted as an electronic version of the entire thesis in a standard C.D. format by mentioning the details and technicalities used in the C.D. format.

The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for theory and clinical; and on the acceptance of the thesis by two examiners, the student shall be allowed to appear for the final examination.

EVALUATION OF THESIS :

ACCEPTED / NOT ACCEPTED

No marks will be given

7. SCHEME OF EXAMINATION

A. UNIVERSITY EXAMINATION PATTERN

Scheme of Paper setting with marks

1. There shall be four theory papers in all MS (ENT) examinations

Paper I: Basic sciences as related to ear, nose, throat diseases.

(Approximately 50% of weight age on Anatomy and Physiology, 30 % another applied basic sciences related to otorhinolaryngology and head and neck surgery and general surgical principles, 10 % temporal bone dissection and 10 % recent advances.

Paper II: Principles and practice of ear, nose, throat diseases, tracheobronchial tree and esophagus including Pediatric ENT

Paper III: Operative surgery of principles of general surgery as applied to ENT.

Paper IV: Recent advances in ENT diseases.

2. Each paper will be of 100 marks.

3. Each paper shall be of three hours duration.

4. All questions will be compulsory.

5. **Paper I - Basic science:** question paper setting and valuation must be done by ENT department only.

Paper I- Total marks= 100

This must include Anatomy, Physiology, Pathology and microbiology, pharmacology, Radiotherapy, Radiodiagnosis, Audiology, Medical ethics and basic surgery techniques, temporal bone dissection and recent advances

Questions must cover all the areas

Question 10 x 10 marks = 100 marks.

6. **Paper II, III, & IV:(Each 100 marks)**

Each paper will have 2 long question of 20 marks (2x 20 = 40 marks)

Short question: 10 short notes of 6 marks (10 x 6 =60 marks)

Total marks: 400

***B.Clinics and Practical:**

First Session

Clinics - 200 marks

Case examination and discussion - 4 cases

Long case of marks: 1x80 marks = 80 marks

3 short case of each 40 marks: 3 x 40 = 120

Total = 200 marks.

The case must be ear, nose, throat, neck and post operative cases.

Second session - Practical (100 marks)

Consist of 10 stations carrying 10 marks each 10X10=100 mark

1. Osteology
2. Pathology slides and pathology specimen
3. Microbiology slides
4. Teaching capacity - a topic must given at the beginning of the clinical examination for teaching capacity.
5. Plan X -Ray and contrast x-ray
6. CT Scan, MRI
7. Audiology
8. Instrument
9. Viva voice on recent advances
10. Operative surgery

Clinics and practical total marks: 300

**Modification as approved in 28th Academic Council meet of SRM University held on 23.03.2015.*

MARKS QUALIFYING FOR A PASS

Marks qualifying for a pass	Maximum marks	Qualifying for a pass 50% marks
Theory examination	400	200
Practical including clinical and Viva voice examination	300	150

A student shall secure not less than 50 % marks in each head of passing, which include 1.Theory 2.Practical including clinical and viva voce examination.

*“The postgraduate medical students are required to pass theory and practical examinations separately. An examinee should obtain minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for Degree examination to be cleared as “Passed” at the said Degree examination”

**As per Medical Council of India notification date 03.09.2014 and the same approved in the 28th Academic council meet of SRM University held on 23/03/2015.*

8.EXAMINATION AND EVALUATION

(1) EXAMINERS

(a) All the Post Graduate Examiners shall be recognised Post Graduate Teachers holding recognised Post Graduate qualifications in the subject concerned.

(b) For all Post Graduate Examinations, the minimum number of Examiners shall be four, out of which at least two (50%) shall be External Examiners, who shall be invited from other recognised universities from outside the State and other two will be internal examiners for M.S.

(c) Under exceptional circumstances, examinations may be held with 3 (three) examiners provided two of them are external and Medical Council of India is intimated the justification of such action prior to publication of result for approval. Under no circumstances, result shall be published in such cases without the approval of Medical Council of India.

(d) The guidelines regarding appointment of examiners are as follows;-

1. No person shall be appointed as an examiner in any subject unless he/she fulfills the minimum requirements for recognition as a Post Graduate teacher as laid down by the Medical Council of India and has teaching experience of 8 (Eight) years as a Lecturer / Assistant Professor out of which he has not less than 5 (Five) years teaching experience after

obtaining Post Graduate degree. For external examiners, he should have minimum three years experience of examinership for Post Graduate diploma in the concerned subject. Out of internal examiners, one examiner shall be a Professor and Head of Department or Professor.

2. There shall be at least four examiners in each subject at an examination out of which at least 50% (Fifty percent) shall be external examiners. The external examiner who fulfils the condition laid down in clause - 1 above shall ordinarily be invited from another recognised university, from outside the State: provided that in exceptional circumstances examinations may be held with 3 (three) examiners if two of them are external and Medical council of India is intimated with the justification of such examination and the result shall be published in such a case with the approval of Medical council of India.
3. An external examiner may be ordinarily been appointed for not more than three years consecutively. Thereafter he may be reappointed after an interval of two years.
4. The internal examiner in a subject shall not accept external examinership for a college from which external examiner is appointed in his subject.
5. The same set of examiners shall ordinarily be responsible for the written, practical or part of examination.
6. There shall be a Chairman of the Board of paper - setters who shall be an external examiner and shall moderate the question papers.
7. The Head of the Department of the institution concerned shall ordinarily be one of the internal examiners and second internal examiner shall rotate after every two year.

(2) Number of candidates

The maximum number of candidates to be examined in Clinical / practical and Oral on any day shall not exceed six for M.S. degree examination.

3) Number of examinations

The university shall conduct not more than two examinations in a year, for any subject, with an interval of not less than 4 and not more than 6 months between the two examinations.

(4) Master of Surgery (M.S.) E.N.T

M.S. examination shall consist of Thesis, Theory Papers, and clinical/Practical and Oral examinations.

(a) Thesis

Every candidate shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis.

Work for writing the Thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the candidate to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Thesis shall be submitted at least six months before the theoretical and clinical / practical examination.

The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical; and on the acceptance of the thesis by two examiners, the candidate shall appear for the final examination.

(b) Theory

(i) There shall be four theory papers.

(ii) Out of these one shall be of Basic Medical Sciences and one shall be of recent advances.

(iii) The theory examinations shall be held sufficiently earlier than the Clinical and Practical examination, so that the answer books can be assessed and evaluated before the start of the Clinical/Practical and Oral examination.

(c) Clinical / Practical and Oral

(i) Clinical examination for the subjects in Clinical Sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a specialist/Teacher, for which candidates shall examine a minimum one long case and two short cases.

(ii) The Oral examination shall be thorough and shall aim at assessing the candidate knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which form a part of the examination.

A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva voce examination.

Evaluation of Answer Scripts

The answer books will be valued by two examiners. One of the two examiners will be from this university and the other will be from any other university. The Average of the two marks secured by the candidate will be taken into account. If the difference between two marks exceeds 20%, the answer scripts shall be valued by the third examiner. The average of the nearest two marks shall be considered as the final mark.

9. MODEL QUESTION PAPER

M.S DEGREE EXAMINATION

(Ear, Nose and Throat)

Paper-I

BASIC SCIENCES AS RELATED TO EAR, NOSE & THROAT DISEASES

Time: Three Hours

Max. Marks: 100

**Answer ALL questions
(Draw diagrams wherever necessary)**

Answer all questions

(10 x 10 = 100 Marks)

1. What is three tier mechanisms of larynx? Describe its clinical applications
2. Discuss the applied surgical anatomy of middle ear spaces.
3. Draw a diagram showing osteo meatal complex. Explain its role in endoscopic
4. Sinus surgery.
5. Describe the 2nd stage of deglutition.
6. Role of CT Scan in FESS surgery.
7. Impedance Audiometry in middle ear pathology.
8. Biofilm in ENT.
9. Biochemistry of endolymph.
10. Adverse effect of antihistame.

M.S DEGREE EXAMINATION

(Ear, Nose and Throat)

Paper-II

PRINCIPLES AND PRACTICE OF EAR, NOSE, THROAT DISEASES,
TRACHEOBRONCHICAL TREE AND ESOPHAGUS INCLUDING PEDIATRIC
ENT

Time: Three Hours

Max. Marks: 100

Answer ALL questions
(Draw diagrams wherever necessary)

Essay Question: (2 x 20 = 40 Marks)

1. Enumerate the causes of unilateral nasal obstruction in a young male. Write briefly on etiopathogenesis of angiofibroma.
2. Discuss the etiopathogenesis of Meniere's disease.

Write short notes on: (10 x 6 =60 Marks)

1. Premalignant lesions of larynx. Discuss their management.
2. Noise induced hearing loss.
3. Laryngomalacia
4. Corrosive poisoning of oesophagus.
5. FB in Bronchus.
6. Glomus tumor.
7. Otosclerosis
8. Atrophic Rhinitis
9. Antrochonal polyp
10. Malignant otitis externa

M.S DEGREE EXAMINATION
(Ear, Nose and Throat)
Paper-III
OPERATIVE SURGERY OF PRINCIPLES OF GENERAL SURGERY
AS APPLIED TO ENT

Time: Three Hours

Max. Marks: 100

Answer ALL questions
(Draw diagrams wherever necessary)

Essay Question: **(2 x 20 = 40 Marks)**

1. Describe the indications and surgical technique of near total laryngectomy.
2. Enumerate the types of neck dissections and write briefly on their indications.

Write short notes on: **(10 x 6 =60 Marks)**

1. Surgical management of pleomorphic adenoma of parotid.
2. Role of microvascular flaps in malignancies of oral cavity
3. Myringoplasty
4. Complications of FESS
5. Management of cavity problem in Mastoidectomy.
6. Indications for diagnostic nasal endoscope.
7. Post cricoid growth
8. Endoscopic septoplasty
9. Cortical mastoidectomy
10. Complications of laryngectomy

M.S DEGREE EXAMINATION
(Ear, Nose and Throat)
Paper-IV
RECENT ADVANCES IN ENT DISEASES

Time: Three Hours

Max. Marks: 100

Answer ALL questions
(Draw diagrams wherever necessary)

Essay Question: **(2 x 20 = 40 Marks)**

1. What is immunotherapy and its role in Head and Neck Cancers.
2. Enumerate the types of lasers and write briefly on its role in laryngeal pathologies.

Write short notes on: **(10 x 6 = 60 Marks)**

1. Thyroplasty
2. Intra operative nerve monitoring in ear surgery.
3. Balloon sinoplasty
4. otoacoustic emissions and applications.
5. cochlear implant
6. anchored Hearing Aid
7. Stapedotomy
8. Calde -well luc's operation
9. Cortical mastoidectomy
10. Interlay myringoplasty

10. RECOMMENDED BOOKS AND JOURNALS

Text Books

1. Scott-Brown's Otolaryngology and Head & Neck surgery - Gleeson, Hodder Arnold. 3volume 7th Edition, 2008.
2. Cumming's otolaryngology and Head & Neck surgery - 4volume 6th Edition Elsevier, 2014.
3. Stell & Marran's Text book of Head & neck surgery & oncology - 5th Edition Hodder Arnold, 2012.
4. Shambaugh's surgery of ear - 5th Edition BC Delker, Glasscock, 2012.
5. Anirban Biswas's Clinical Audiovestibulometry - 4th Edition Jaypee, 2009.

Referral Books:

1. Brackman's otologic surgery - 3rd Edition Saunders, 2010.
2. Diseases of nose, throat and ear - Dhingra 6th Edition Elsevier, 2013.
3. Rob & Smith's operative surgery of ear, nose and throat - 4th Edition Butter Worth, 1986.
4. Bluestone's pediatric otolaryngology - 2volume 5th Edition Saunders, 2014.
5. Ludman's diseases of ear - 6th Edition Hodder Arnold, 2006.
6. Harnsberger's Head & neck imaging - 2nd Edition Elsevier, 2010.
7. Jatin P Shah's Head & neck surgery - 4th Edition Elsevier, 2012.
8. Monto Gomery Surgery of Larynx - Saunders, 2002.

List of Journals:

- Journal of Oto-laryngology and Head & Neck Surgery.
- Journal of Laryngology and Otology
- Laryngoscope
- Archives of Otolaryngology Head & Neck Surgey.
- Indian Journal of Oto-rhinolaryngology and Head & Neck Surgery.
- Otolaryngologic Clinics of North America.
- Annals of Otology, Rhinology and Laryngology.
- Journal of Facio-maxillary surgery

*Success is not final, failure is not fatal;
It is the courage to continue that Counts*
- Winston Churchill

