

**Orientation program:**

**Common Foundation Course (6 months)**

Posting in ward, OPD, OT,  
Emergency ward (1 month)

ICU posting (2 weeks by rotation).  
Protocol for thesis submission

Assessment (5%)

**DISCIPLINE TRAINING (during – 2 ½ years)**

- |  |                 |
|--|-----------------|
| A. Ward Round daily (Patient care/Teaching)  |                 |
| B. OPD – Case base Learning & Patient care   | Assessment (5%) |
| C. Demonstration of operative procedures in OT and Cadaveric dissections in the laboratory<br>(Temporal bone & head and Neck dissection) |                 |
| D. Case-presentation/discussion (Afternoon special clinics)  | Assessment (5%) |
| E. Journal Club Weekly   |                 |
| F. Seminar weekly including presentation of thesis progress  | Assessment (5%) |
| G. Surgico-pathological conference, weekly   |                 |
| H. Radiology Conference – monthly  | Assessment (5%) |

**II. Thesis submission after final presentation**

**III.** Audiovestibular /experimental Labs (ABR; ENG; Animal)- exposure during 2<sup>nd</sup>& 3<sup>rd</sup> year

**IV.** Attendance of conferences (State, Zonal/National level) during 2<sup>nd</sup> & 3<sup>rd</sup> year

**V.** Community service-patient care camp/Awareness camps on ear diseases/Head-neck oncology (especially on preventive otolaryngology during 2nd-3rd year).

**Assessment:**

1. Formative assessment: 25%
2. Summative assessment (Final exams): 75%

## COURSE GOAL & OBJECTIVES

### Major Goal

**Patient care Ability:** A postgraduate in ENT-Head & Neck Surgery at the end of its 3 year course should develop proper clinical acumen to interpret diagnostic results and correlate them with symptoms from history taking and become capable to diagnose the common clinical conditions/diseases in the speciality and to manage them effectively with success without making any serious complications and sincerely to take such accurate decision, for the patient's best interest including making a referral to/consultation with a more experienced colleague /professional friend while dealing with any patient with a difficult condition. He/ she should be able to create awareness about preventive Otolaryngology in the society.

**Teaching ability:** He/she also should be able to teach an MBBS student about the commonly encountered conditions in ENT pertaining to their diagnostic features basic pathophysiological aspect and the general and basic management strategies.

**Research Ability:** He/she should also acquire elementary knowledge about research methodology, including record-keeping methods, and be able to conduct a research enquiry including making a proper analysis and writing a report on its findings.

**Teamwork:** He/she should be capable of working as a team member. He/she should develop general humane approach to patient care with communicating ability with the patient's relatives especially in emergency such as in Casualty department while dealing with cancer patients and victims of accident. He/she should also maintain human values with ethical consideration.

### OBJECTIVES OF THE POST-GRADUATE COURSE

A postgraduate at the end of a 3<sup>rd</sup> year P.G. degree course should acquire the following:

1. **Cognitive knowledge:** Describe embryology, applied anatomy, physiology, pathology, clinical features, diagnostic procedures and the therapeutics including preventive methods, (medical/surgical) pertaining to ENT- Head & Neck Surgery.

2. **Clinical decision-making ability & management expertise:** Diagnose conditions from history taking, clinical evaluation and investigations and develop expertise to manage medically as well as surgically the commonly encountered, disorders and diseases in different areas as follows:

2(a)Otology, Neurology & Skull-base Surgery: External, middle and internal ear diseases, deafness including the common complications associated with middle ear inner facial Nerve palsy, tinnitus, vertigo and other conditions such as acoustic neuroma, malignant tumors, glomus tumor and petrous apex cholesteatoma etc. and to be capable of doing early diagnosis of these conditions and also to acquire adequate knowledge about principles of therapy of these diseases.

**2(b) Rhinology:** Able to Diagnose and manage Nose and paranasal sinus conditions such as infection, polyps and allergy. Acquire some surgical skills to do septorhinoplasty, septoplasty, functional endoscopic sinus surgery (FESS). Develop capability to do oncologic diagnosis and therapy planning for proper management of such patients in collaboration with radiotherapists and medical oncologists.

**2(c) Laryngology:** Able to diagnose and manage benign lesions of the larynx including voice-disorders and pharyngeal and nasopharyngeal diseases, viz-adenoids and angiofibroma. Capable to do diagnosis of oncologic conditions such as laryngeal carcinoma and plan its therapy strategies.

**2(d) Oral cavity/salivary glands:** Head & Neck Tumor and Cancer patient diagnosis and management. Salivary gland tumor diagnosis and management

**2(e) Broncho-esophageal region:** Learn about broncho-esophageal diseases/disorders such as congenital disorders, diagnosis of foreign bodies in Aero-digestive tract with their management policies. Capable to perform Panendoscopies for oncologic evaluation in the head-neck region, including oesophageal malignancy.

**2(f) Plastic reconstruction following major head neck surgery & trauma :** Acquire general principles of reconstructive surgery and its referral needs.

**2(g) Advanced Surgical methods:** Acquire knowledge about phonosurgery like microlaryngoscopic surgery, palatopharyngoplasty for VPI & Cleft palate, and thyroplasty for voice-disorders.

**2(h) General principles of newer therapy/Surgery:** Newer knowledge about ENT diseases in general, including technological (Laser) and pharmacologic advances (medicines) and newer method of therapy for certain conditions such as Obstructive sleep apnoea syndrome and asthma.

**2(i) Traumatology & Facio-maxillary Injury:** Acquire knowledge in the management of Traumatology in general and faciomaxillary injury in particular, including nasal fractures. Be capable of doing screening in the community, of the audiological & speech related disabilities, and also to do early identification of malignancies and create its awareness in the community/ society to eventually get better cooperation from people in health management.

**2(j) Radiology:** Acquire knowledge about radiology/imaging and to interpret different radiological procedures and imaging in ENT– Head and Neck and skull base regions. There should be collaboration with Radiology department for such activities.

**2(k) Audiology & Rehabilitation:** Perform different audiological and neuro-otological tests for diagnosis of audiologic/vestibular disorders/diseases and

become capable to interpret these findings and to incorporate their implication in diagnosis and their treatment including the rehabilitative methods in audiology and speech pathology including hearing aids and other assistive and implantable devices.

**2(l)Psychologic and social aspect:** Some elementary knowledge in clinical Psychology and social, work management is to be acquired for management of patients, especially those terminally ill and disable-persons and interacting with their relatives.

**Teaching:** Acquire ability to teach an MBBS student in simple and straight forward language about the common ENT ailment/disorders especially about their signs/symptoms for diagnosis with their general principles of therapy.

3. **Research:** Develop ability to conduct a research enquiry on clinical materials available in Hospital and in the community.

4. **Patient doctor relation:** Develop ability to communicate with the patient and his/her relatives pertaining to the disease condition, its severity and options available for the treatment/therapy.

5. **Preventive Aspect:** Acquire knowledge about prevention of some conditions especially in children such as middle ear and sinus infection, hereditary deafness and early diagnosis of head-neck malignancy. Hence, he/she should know about the preventive Otorhinolaryngology (ENT).

6. **Identification of a special areas within the subject:** To further develop higher skills within the specialty such as Otology, Neurology, Rhinology, head and neck oncology, skull base surgery and audiological medicine, Resident may identify some area of interest, during the Residency and do fellowship/Senior Residency Program in one of such areas like Otology.

7. **Presentation of Seminar/paper:** Should develop public speaking ability and should be able to make presentation on disease-conditions/research topics to fellow colleagues in a Seminar/meeting/ conference using audiovisual aids.

8. **Research writing:** Should be capable of writing case-reports and research papers for publication in scientific journals.

9. **Team work:** Team spirit in patient management, working together in OPD, OT, and sharing responsibility with colleagues such as doctors, nurses and other staff are essential. Resident must develop these attributes through different mechanism of interaction.

## PRACTICAL TRAINING

A Junior Resident doctor, pursuing a P.G. Degree course is expected to perform major and minor surgical procedures independently as well as under supervision of a faculty member/a senior resident.

***She/he should be able to do many major operations independently such as: (Few examples only given):***

- Tracheostomy,
- Tonsillectomy
- Adenoidectomy/grommet insertion,
- Nasal Polypectomy
- Incision/drainage of quinsy/other abscesses,
- Septoplasty
- Cortical mastoidectomy
- Modified radical Mastoidectomy.
- Emergencies like, fracture nasal bone, stridor requiring a tracheostomy, epistaxis, Subperiosteal abscess, and Peritonsillar abscess.
- Myringotomy, myringoplasty and tympanoplasty
- Sub-mandibular salivary gland removal
- Biopsy under local anesthesia
- Direct Laryngoscopy
- Nasopharyngoscopy
- Excision of thyroglossal cyst
- Oesophagoscopy
- FESS
- Rigid oesophagoscopy
- Pinna-Repair (Post-traumatic)
- Hemi thyroidectomy

***He/she should be able to do the following operations under supervision/guidance of senior colleagues/faculty member (Few examples only given):***

- Maxillectomy (Partial)
- Repair of laryngotracheal trauma.

- Ligation external carotid artery
- External canal atresia-surgery,
- Rhinoplasty for cosmetic purposes.
- Fibre-optic bronchoscopy and oesophagoscopy for foreign body removal
- Microlaryngoscopic voice-surgery for vocal nodules, polyps/ cyst etc
- Phonosurgery for cord palsy including type I thyroplasty.
- Faciomaxillary injury etc.

***He/she will be assisting in the following operations with senior colleagues/faculty members (Few examples only given):***

- Superficial Parotidectomy
- Neck dissection
- Total Laryngectomy for cancer.
- Laryngofissure
- Facial nerve decompression
- Stapedectomy
- Cryo/Laser surgery in ENT
- Skull base/parapharyngeal space surgery
- Total thyroidectomy
- Laryngo-tracheal stenosis – surgical correction
- Surgery of choanal atresia, maxillectomy (total)

**Duration of Training and Rotation Program (ward/OT/OPD) First Year**

- Spends 6 (six) months in orientation program including exposure to Audiology Section and Vestibular Laboratory;
- Learn bedside history taking in ward, OT exposures, casualty, ICU requirement .
- Care of indoor (Medical; preoperative and postoperative) patients for a minimum period of 6months.
- Attends operation theatre and emergency operations for acclimatization.
- Assists ward rounds and visit other wards with senior colleagues to attend call/consultations from other department.
- Participates in the teaching sessions in ward for bedside clinical aspect in the weekly afternoon Seminar/Journal Club.

**After 6 months of orientation during 2 ½ years:**

- Attends ENT OPD

- Discusses problematic cases with the consultant(s) in OPD/ward
- Attends Operation Room/theatre
- Attends morning round
- Looks after minor O.T by rotation in the OPD area for minor procedures.
- Care of the indoor patients on beds allotted to him/her.
- Attends the weekly Journal Club and seminar and presents the same by rotation.
- Attends Vertigo Clinic, Otology Clinic, Rhinology Clinic and Tumor board Clinic and presents cases, participates in discussions including therapy planning etc.
- During the 2 ½ years, the resident must attend the combined Teaching Program with Department of Surgery, Neurosurgery and Medicine i.e. Clinical meetings, CPC's of students and staff of the whole hospital.
- Surgico-pathological conference in Pathology Department, with surgeons.
- All kinds of specially prepared lectures by department faculty or from R.T./Plastic or Neurosurgery departments.
- Visits by rotation the Rural Clinic for community exposures/work experience
- Does emergency duty as per Roster of the department.
- Attends lectures by Visiting Faculty to the department/college from India/abroad,
- Attends/participate/present papers in State/Zonal/National conferences.
- Actively participate/help in organization of Departmental Workshop, Courses in specialised areas like FESS/Otology, Rhinoplasty, Neuro-otology and Head-Neck Oncology from time to time.

*Research methodology/ Reporting on research*

Learns the basics in research methodology and make the thesis protocol with the 4 months of admission.

- Problem oriented record keeping including use of computer.
- Use of Medical literature search including through Internet use, in the Library.
- Attends biostatistics classes by arrangement.

*Research Report*

- writing including preparation of Protocol for Research/Thesis.
- Writing an abstract/short paper/presentation style (Slide- making & audiovisual aids).
- Preparation of a report on a research project/Thesis.

*Humanity/ Ethics:* Lectures on humanity including personality development, team spirit and ethical issues in patient care and human relationship including, public relations, by Psychologist and public relation officers are to be arranged by the department/college.

Presentation for the Thesis work

*a. Selection of thesis Topic*

Subject of thesis will be selected by the candidate under guidance of Faculty which will be approved by the departmental guide and other faculty. The Candidate will be asked to submit the protocol within 4 (Four) month of admission after it is scrutinized by departmental Faculty. It is to be approved by the Central thesis committee of the Institute/College if such committee does exist, and the ethical considerations are also discussed in such Research Program committee.

Once the thesis protocol is approved the candidate starts his research work under direct supervision of guide and co-guides.

Three/six monthly progress of the thesis will be checked to know the outcomes/or difficulties faced by the Candidate. Candidate will be asked to submit the thesis 6 months before the final exams. At the discretion of Executive Director /thesis committee one month extension may be given to a candidate for submission of the protocol and the final thesis for any valid reason for the delay.

#### TEACHING LEARNING METHODS

The following learning methods are to be used for the teaching of the postgraduate students:

1. Journal club: 1-2 hours duration - Paper presentation/discussion - once per week (Afternoon).
2. Seminar: One seminar every week of one hour duration (morning/evening).
3. Lecture/discussion: Lectures on newer topics by Faculty, in place of seminar/as per need.
4. Case presentation in the ward and the afternoon Special clinics (such as vertigo / otology Tumor clinics).

Resident will present a clinical case for discussion before a faculty and discussion made pertaining to its management and decision to be recorded in case files.

5. Surgico-pathological meetings: Special emphasis is made on the surgical pathology and the radiological aspect of the case in the pathology department. such exercises help the ENT/Pathology/ Radiology Residents.

6. Combined Round/Grand Round: These exercises are to be done for the hospital once/week or twice/month involving presentation of unusual or difficult patients. Presentations of cases in clinical combined Round and a clinical series/research data on clinical materials for benefit of all clinicians/ Pathologists/other related disciplines once in week or forthrightly in the Grand round.

7. Community camps: For rural exposure and also for experiences in preventive aspect in Rural situation/hospital/school, Patient care camps are to be arranged 2-3/year, involving Residents/junior faculty.

8. Emergency situation: Casualty duty to be arranged by rotation among the PGs with a Faculty cover daily by rotation.



9. Afternoon Clinics:

- i. Vertigo Clinic: Once a week. All the patients of vertigo attending ENT OPD/referred cases are worked up in details by the Junior Residents and are discussed with one/two Faculty and treatment, decided upon
- ii. Head-neck tumor board: Once or twice a week. In collaboration with the Radiotherapy Department, the patients with head and neck cancer in the field of ENT and Head and Neck are worked up by the Junior Residents and discussed about for their management by the ENT as well as Radiotherapy Consultants and treatment decision, made.
- iii. Rhinology Clinic: Once/week for patients with sinus diseases and nasal deformity for rhinoplasty-presented and discussed. Decision for FESS/Rhinoplasty or only other treatment taken.
- iv. Otology Clinic: Once a week. The ear cases are thoroughly investigated and are discussed by the Junior Residents with the faculty for their management/discussions are made after each case is presented. Audiologist also participated in this clinic.

10. Bedside clinical training for patient care management and for bedside manners: Daily for ½ to one hour's duration during ward round with faculty and 1-2 hours in the evening by senior resident/ Faculty on emergency duty, bedside patient care discussions are to be made.

Once a week one Faculty should take a one-hour Teaching Round by Rotation of Faculty (4/5 such rounds per semester of 6 months).

11. Mortality meeting: Once a month/ once in 3 months the records of such cases are presented by the Senior Residents. The Junior Residents are encouraged to participate actively in the discussion in the presence of Faculty of ENT and hospital administration. This program helps to take corrective measures as well as to maintain accountability in patient management.

12. Clinical teaching: In OPD, Ward rounds, Emergency, ICU and the Operation Theatres: Residents/ Senior Residents and Faculty on duty in Respective places – make discussion on clinical diagnosis/surgical procedures/ treatment modalities, including post operative care and preparation discharge slip.

13. Clinical interaction with audiologists/speech therapist: Clinical interaction with audiologist/ speech therapist pertaining to management of the patients with 1audiological/speech problems are to be made/discussion arranged. Audiologic methods and therapy strategies are to be made known to Resident doctors.

14. Research Methodology: Courses and Lectures are to be arranged for the residents for language proficiency by humanity teachers besides few lectures on human values and ethical issues in patientcare.

15. Writing Thesis: Thesis progress is presented once in 3 months and discussion made in the department. Guides/co-guides are to hear the problems of the candidate; can provide assistance to the student. Progress made or any failure of the candidate may be brought to the Notice of college Dean/ Principal.

16. Cadaveric dissection Lab: Cadaveric temporal bone, Nose & Paranasal Sinuses and head & neck dissections must be arranged in the Departmental Lab and/or in the

anatomy department for learning surgical anatomy by dissection as well as for learning different operative procedures under faculty supervision and independently (for middle ear operations using operating microscope and for other head and neck surgical procedures including endoscopic (FESS) sinus surgery using endoscopes during 2nd & 3rd year of Residency on a regular basis before/during exposure of particular batch of students to real operative procedures in patients. Discussion of anatomy in anatomy tables in the department of Anatomy.

17. Log book: Each student must be asked to present a specified number of cases for clinical discussion, clinic-radiological and clinic-pathological meeting, perform and assist various procedures/tests/operations/present seminars/review articles from various journals in inter-unit/interdepartmental teaching sessions. They should be entered in a Log Book. The Log books shall be checked and assessed periodically by the faculty members imparting the training.

#### Final Examination & Examiners

The Oral, Clinical and Practical Examination: No more than four P.G. students should be subjected to

practical exam in a day during the examination.

Results of the examination will be declared as pass/failed/pass with distinction (Grades/marks may also be given, if necessary, as per University Rules). While doing so, both formative and summative assessment will be taken into consideration.

#### Assessment

*Formative:* 25% (6 monthly, each with 5% weightage) Based on day-to-day/semester Tests, jointly or individually assessed by different faculty members & computed and a final aggregate will be considered together and that will consider as 25% weightage:

*Summative:* Final Examination -Will have a 75% weightage: Basis Theory/practical examination.

Both Formative assessment and Summative assessment will be added together at the time of final examination, and results prepared accordingly.

*The Examination for the degree (MS-ENT) shall consist of*

Theory exams: Papers (I, II, III, IV)

Practical Exams: clinical, Oral, instruments/specimen/X-rays.

1. Theory: There shall be four papers: Each being of three hours duration. Each paper will have 8-10 short questions from the curriculum.

Paper I-Basic Sciences related to Otorhinolaryngology

Paper II- Principles and Practices of Otorhinolaryngology

Paper III -Recent advances in Otorhinolaryngology and Head& Neck surgery

Paper IV -General Surgical Principles & Head-Neck Surgery.

2. Practical Examination- (a) Identification of Surgical Pathology, excised specimens & discussion, Reading X-Rays & CT scan/MRI/Identification of Instruments & discussion, interpretation as audio vestibular investigations such as audiogram, ABR, ENG etc. simulated surgical situation/steps of operative procedures, required instruments/discussion.

Clinical Patient presentation/discussion:

- (i) One long case: The long case will be structured, comprising history taking, clinical examination, investigations, decision making, proposed treatment modalities, ethical justification and personal attributes.
- (ii) Two short cases: The short cases will also be structured in which only one system may be considered and therapy decision/discussion, made.

Examiners/ Final Examinations

- a. There shall be four examiners including two external and two internal. One of the internal examiners will be the Head of the Department and he /she shall be Chairman/Convener. The second internal examiner shall be next senior most member of Faculty of the department provided he/she is eligible for such duty. The necessity of an external examiner is to maintain the standard of the examination at the National level. All examiners must be a full-time teacher with requisite experience as per MCI guidelines. Honorary teacher with previous full-time experience (of 10 years standing) may only be made examiners If there does not exist any a full time qualified faculty under the same university/college. No Honorary. Faculty shall be made a chairman/convener of the examination.
- b. The external examiners will be asked to send two sets of question papers for the theory examination.

There will be 2 external examiners from a different University so that the number of questions available will be double the number which will be given to the student in the moderated papers. The Chief internal examiner or Chairman/Convener will moderate it and finally make two sets of question paper, containing 8-10 shorts questions. He/she shall send both sets of such papers to the university and university will decide to give one of the sets to the students.

- c. All examiners shall be jointly responsible for the examination. In presence of the external examiners, the Chairman and the internal examiner shall make the necessary arrangements for conducting the Final examination. Not more than 4 students will be

evaluated/examined per day in any Centre. For different College/Institution, separate examination Centre/Examiners may be arranged/ appointed for convenience and proper administration of the Final examination. While preparing the Final Results, Formative assessment of the students shall be taken into consideration, and the results will be sent to the university under seal cover.

#### Syllabus for Individual Papers

##### Paper –I

Physiology- Mechanism of perception of smell and taste, mechanism of breathing and voice production, lacrimation, deglutition and salivation. Functional tests of the nose and para nasal sinuses, Mechanism of cough and sneezing.

Physics of sound, theories of hearing, mechanism of perception of sound and speech Production, Physiology of equilibrium & Cerebral function. Physiology of brain in connection with hearing, speech, smell and phonation. Audiologic tests like audiometry, impedance, evoked potentials, OAE, Speech audiometry Physiology of larynx, tracheobronchial tree & esophagus - Histology of mucous membranes, internal ear and other associated organs and structures, nose, PNS, Larynx, TB tree, Lymphoepithelial system. Mechanism of immune system/immunology and genetics.

Anatomy- Embryogenesis of ear, nose and throat including palate and the larynx, esophagus, trachea and lungs, tongue, salivary gland Head & Neck & skull base etc.

Parapharyngeal spaces in the neck including connective tissue barriers of larynx.

Applied anatomy of the skull bones, accessory sinuses, external, middle and inner ears, nose, PNS, nasopharynx, meninges, brain, pharynx, larynx, trachea and bronchi, lungs, pleurae esophagus and the mediastinum.

Anatomy of all cranial nerves with their functions.

##### Paper-II

1. Clinical methodology as applied to ENT diseases in adult & children and the accessory sinuses, diagnosis and surgical treatment of diseases of nose, throat and ear in adult and children. Prevention and treatment, infectious diseases of Otolaryngology and Head Neck region. Circulatory and nervous disturbances of the nose, throat and ear and their effects on other organs of the body. Deformities, injuries, sinus infections, polyps and the tumors of the nose, and paranasal sinuses. Examination of the ear, deafness and allied diseases, complications of diseases of the ear. Injuries, tumors, nervous and circulatory neurological disturbances of the ear. Diagnosis and treatment of tinnitus and vertigo. Diagnosis and rehabilitation of the Hearing handicapped including, dispensing of hearing aid.

2. Surgical pathology of Otolaryngology and Head Neck region.

3. Basic knowledge of anesthesia as related to ENT.

4. Examination of diseases of children (Pediatric ORL) in connection with throat and larynx. Neurological and vascular disturbances. Congenital and neonatal stridor.
5. Pathology of various diseases of the larynx and throat, trachea-bronchial tree and their causative organisms.
6. Indications and various techniques of direct laryngoscopy, nasal endoscopy, bronchoscopy and esophagoscopy, including microlaryngoscopic procedures.
7. Reading of radiograms, scans, audiograms, nystagmograms and tympanograms in connection with ENT diseases/ disorders.
8. Special apparatus for the diagnosis and treatment of the diseases of ear, nose and throat including audiometer, BERA, ENG, Speech analyzer etc.

Paper- III

1. The recent developments in the diagnosis pathogenesis treatments of the ENT diseases.
2. The knowledge of the frontiers of the oto-laryngology and lateral skull base surgery.
3. Rhinoplasties, endoscopic sinus surgery, and anterior cranial fossa surgery.
4. Knowledge of LASERS and fiber optics.
5. Other methods of managing Hearing loss.
6. Implantable hearing aids. cochlear implants.
7. Phonosurgery
8. Etiology and Managements of sleep apnoea/snoring,
9. Hypophysectomies and optic nerve decompressions.
10. Immunotherapy and modalities of the gene therapy
11. Newer techniques for Radiotherapy including, use of gamma knife for treatment of intracranial tumors and other malignancy.
12. Chemotherapy of cancer.

Paper –IV

*(General surgical Principles & Head Neck Surgery)*

1. General surgery, Head & Neck oncology, and & Medicine as applicable to the ENT disorders/ diseases. Surgery of congenital deformities of nose, ear (Pinna) & trachea/esophagus etc.
2. Radiology, Imaging – computed tomography and magnetic resonance imaging, (MRI) and interventional radiology and angiography as related to E.N.T.
3. General pathologic aspects such as wound healing and also Pathology and Pathogenesis of ENT diseases, Pharmacology, molecular biology, genetics, cytology, hematology, and immunology as applicable to otolaryngology.
4. General principles of faciomaxillary traumatology and also neck injury, Plastic surgery as applicable to Otolaryngology.
5. Basic computers, computer averaging of the biological signals and its applications in Otolaryngology& Otolaryngologic equipments.

6. Audiologic and speech disorders and their management strategies.
7. Principles of Jurisprudence and ethical issues and applicable to ENT surgeons

**Core syllabus for PG Student:**

1. Anatomy and Physiology of Ear, Nose and Throat, Trachea and esophagus.
2. The generation and reception of speech
3. Radiographic anatomy of the ear, nose, throat and imaging.
4. Bacteriology in relation to Otorhinolaryngology
5. Allergy and rhinitis
6. Haematology in relation to Otolaryngology
7. Anesthesia for Otolaryngology
8. Pharmacology of drugs used in ENT
9. Electrolyte, fluid balance/shock conditions
10. Routine blood, urine testing
11. Facial nerve stimulation test
12. Audiometric tests like pure tone Audiometry, Impedance Audiometry, Free field Audiometry, Specialized tests of hearing including SISI, Tone decay, ABLB, Speech discrimination score etc.
13. Vestibular tests like caloric test (Water and Air) stepping test,
14. Evoked response audiometry, Auditory Steady State Response and OAE.

**Ear:**

1. The physical and functional examination of the ear
2. The functional and physical examination of the vestibular system.
3. Tinnitus
4. Diseases of external ear
5. Repair of deformities of the external ear.
6. Congenital conditions of the middle ear cleft
7. Traumatic conductive deafness
8. Acute inflammation of the middle ear cleft
9. Non-suppurative otitis media
10. Chronic suppurative otitis media
11. Management of chronic suppurative otitis media
12. Complications of infections of middle ear.
13. Tumors of the middle ear cleft and temporal bone
14. Diseases of the otic capsule-otosclerosis and other diseases
16. The deaf child

17. Acoustic neuroma
18. Ototoxicity
19. Presbycusis
20. Diagnosis and management of sudden and fluctuant sensorineural hearing loss
21. Meniere's disease
22. Neurologic aspects of vertigo
23. Facial paralysis
24. Rehabilitation of adults with acquired Hearing loss-Hearing aids
25. The cochlear Implants, BAHA, brainstem implant, middle ear implant

**Nose:**

1. Examination of the nose
2. Conditions of the external nose
3. Injuries of the facial skeleton
4. Congenital diseases of the nose
5. The nasal septum
6. Foreign bodies in the nose, rhinolith
7. Epistaxis
8. Acute chronic inflammations of the nasal cavities
9. Vasomotor rhinitis-allergic and non-allergic
10. Nasal polyposis
11. Abnormalities of smell
12. Acute sinusitis
13. Chronic sinusitis
14. Nasal Allergy/Fungal allergic sinusitis
15. Complications of acute and chronic sinusitis
16. Tumors of nose and sinuses
17. Facial pains
18. Functional endoscopic sinus surgery (FESS)

**Throat:**

1. Methods of examination of the mouth and pharynx

2. Diseases of the mouth
3. Diseases of the salivary glands
4. Pharyngeal lesions associated with general diseases
5. Diseases of the tonsils and adenoids (excluding neoplasms)
6. Tumors of the pharynx, larynx
7. Hypopharyngeal diverticulum (Pharyngeal Pouch)
8. Methods of examination of larynx and tracheobronchial tree
9. Congenital diseases of the larynx
10. Laryngeal disorders in singers and other voice users
11. Neurological affections of larynx and pharynx
12. Intubation of the larynx and tracheostomy
13. Neck dissection
14. Management of Difficult airway

**Miscellaneous and head and neck:**

1. Cranial nerves
2. Pituitary gland, anatomy, physiology hypo and hyper pituitarism.
3. Intracranial venous sinuses and their clinical importance
5. Osteology: skull, mandible cervical and thoracic vertebral sternum
6. Cervical fascia, facial spaces in neck, retro-pharyngeal and parapharyngeal Abscesses
7. Anatomy and physiology of thyroid gland, goitre, diseases of the thyroid and carcinoma of thyroid
8. Recent advances in ENT

**Drugs used in ENT:**

1. Antibiotics
2. Antihistaminic
3. Nasal vasoconstrictors
4. Local anesthetic agents
5. Corticosteroids
6. Cytotoxic agents
7. Antibiotics
8. Radioactive isotopes
9. Antifungal agents
10. Vasopressive and other agents used in shock like states.
11. Immunotherapy



Non-core topics (Good to know)

1. Nystagmus
2. Trans-ethmoidal hypophysectomy
3. Skin grafts in Otolaryngology and reconstructive methods including regional and distant flaps for repair of defects after excision of tumors or trauma.
4. Micro laryngeal surgery/thyroplasty
5. Raised intracranial tension-causes, diagnosis, management with particular reference to otitis hydrocephalus
6. Head injuries and I.C. Hemorrhage
7. Head and neck reconstructive surgery