بسم الله الرحمن الرحيم

CURRICULUM / STATUTES/ REGULATIONS

FOR 4 YEARS MS (Otorhinolaryngology)

Faisalabad Medical University

Faisalabad

Contents

Section A

VISION STATEMENT:

Faisalabad Medical University has been established since 05-05-2017 for purpose of imparting better medical education and encouraging and arranging extensive research and publication in the field of medical science. The vision of university is:

"Striving to achieve national and international stature in undergraduate and postgraduate medical education with strong emphasis on professionalism, leadership, community health services, research and bioethics"

MISSION STATEMENT

The mission of the University is:

"Educate Healthcare professionals to prevent, diagnose and treat human illnesses to practice evidence-based medicine with focus on lifelong healthcare in order to meet the challenges of community needs and competitive medical profession at the same time"

STATUTES

Nomenclature

The name of degree programme shall be MS Otorhinolaryngology.

Course Title:

MS

Training Centers

Department of Affiliated hospitals of Faisalabad Medical University, Faisalabad.

Duration of Course

The duration of course shall be four years with structured training in a recognized department under the guidance of an approved supervisor.

Course structure:

1. **Core knowledge:** Competency based learning for trainees. (2 exams to be conducted by university at mid and end of Programme. Structural internal exam to be included throughout the Programme which is conducted by the department. At the end of 1st year and 3rd year, structural internal assessment to be conducted by department which will carry weightage in final assessment. This assessment will be conducted at the end of 4th year also)
2. **Clinical Training** in Otorhinolaryngology
3. **Research and Thesis writing.**

4. **Mandatory Workshops** throughout the course of programme will be conducted. The basic workshops will be attended by all trainees from all specialties and will be evenly distributed throughout the course:

    1. **Communication skills**
    2. **Research synopsis and thesis writing skills**
    3. **Basic Biostatistics and Research Methodology**
    4. **Information Technology Skills**
    5. **Initial life support**

At the end of each workshop, assessment will be done regarding the workshop and certificates will be issued to passing trainees only. The workshops will be conducted by the University and will be paid as in all post-graduate programmes and supervised by the department of Medical Education, FMU, Faisalabad. The trained certified coaches/teachers will be invited and they will get incentive from the university. All the interested trainers will contact the department for inclusion in trainers list.

Feedback of the facilitators will be recorded for the continuation of the process. Medical education department will issue yearly planner for these workshops in the light of curriculum document. University will certify it.

5. **Specialty Specific workshops**

Basic surgical skills

Section B:

Admission Criteria

Central induction Policy as per Government rules

Registration and Enrollment

The number of PG Trainees/ Students and Beds to trainee ratio at the approved teaching site will be as per policy of Pakistan Medical & Dental Council

The University will approve supervisors for MS courses.

Candidates selected for the courses after their selection and enrollment shall be registered with FMU as per prescribed Registration Regulation.

Accreditation Related Issues of the Institution

A. Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical and Dental Council (PMDC). Supervisors will be decided by the university according to the set standards and rules.

B. Adequate resources

The university will provide adequate resources Including class-rooms (with audiovisual aids), demonstration rooms, computer lab, clinical pathology lab, theaters, instruments and other equipment etc. for proper Training of the residents as per their course outcomes and objectives.

C.

Library

Departmental library should have latest editions of recommended books, reference books and latest journals (National and International).

Freezing of Program

1. Freezing of the program, maternity leave, Ex-Pakistan leave and extraordinary leave etc. will be allocated throughout the office of the Dean Post graduate to the competent authority.

Section C:

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of four years MS programme in otorhinolaryngology is to train residents to acquire the competency of a specialist in otorhinolaryngology so that they can become good clinicians, teachers, researchers and community health provider in their specialty after completion of their training according to the global standards.

LEARNING OBJECTIVES:

Knowledge:

On completion of programme, the Trainee should be able to:

1. Have clear concepts of medicine and surgery.

2. Discuss Etiology, clinical features, natural history of disease, prognosis, investigations and treatment of common diseases.

3. Analyze pathophysiology of diseases.

4. Describe presence of multiple clinical features in the same patient.

5. Explain social and Psychological aspects of medical/surgical diseases.

6. Demonstrate how to interpret investigations and other diagnostic measures.

7. Critically analyze cost effectiveness and efficacy of treatment options

8. Evaluate audit and quality assurance services.

9. Perform ethical practice and understand medico-legal aspects.

10. Implementation of evidenced based medicine (EBM) in order to diagnose and treat patients.

11. Evaluate and differentiate various facilities of health care.

12. Practice taking care of patient safety and clinical risk management.

13. Understand the concepts of planning for management.

Skills:

On completion of programme, Trainee should be able to:

1. Take a complete history, collect data from patients, and assimilate the information to make diagnostic and management plan.

2. Make record of the history and examination and make detailed notes.

3. Elicit abnormal physical signs and interpreting their significance.

4. Correlate clinical features with pathophysiologic and diagnosis of disease.

5. Choose adequate investigations and procedures in order to diagnose and mange patient.

6. Should be able to understand laboratory findings and relation to the illness.

7. Understand laboratory and other tests including CBC, chemistry Tests, ECG, CXR, PFTs.

8. Make a list of differential diagnoses in accordance with finding of history and clinical examinations to select tests for taking therapeutic decisions.

9. Select and effective treatment option depending upon the risks, benefits, and costs of various options, after detail discussion with the patient.

10. Perform competently noninvasive and other procedures after taking informed consent regarding indications, contraindications, findings, results and complications of the procedures.

11. According to the indications perform bedside diagnostic and therapeutic procedures.

12. During grand rounds and seminars present clinical problems.

13. with patients, attendants and healthcare have good communication skill.

14. At all stages of illnesses ensure availability of appropriate resources and rehabilitative services.

15. Diagnose and manage Medical/Surgical emergency problems.

16. Be able to diagnose and manage diseases as secondary care in district/tehsil hospital.

17. Use skills to diagnose and refer complex and unusual cases.

18. Ensure early diagnoses and preventive care.

19. Should have the ability to understand and present medical statistics and published work and clinical research on disease presentations and treatment outcomes.

20. Perform evidence based learning.

Attitude:

On completion of the course, the Trainee should be able to:

1. Realize that well-being and restoration of health of patients is of prime importance.

2. Have Empathic approach.

3. Be able to lead the team of doctors, nurses and paramedics.

4. Know about cost effective investigations and treatments options.

5. Respect the confidentiality of patients.

6. Always take informed consent.

7. Work for psychological and socio-economic rehabilitation.

8. Be aware of recent advances.

9. Refer the patients timely.

10. Encourage immunizations health screening and risk assessment.

GENERAL OBJECTIVES

The objective of four years MS otorhinolaryngology program is to train residents to acquire the competency of a specialist in the field so that they can become good safe surgeons, researchers and clinicians in the society.

SPECIFIC LEARNING OUTCOMES:

To guide trainees in improving delivery of health care to community according to their economic state.
To practice according to evidence based medicine (EBM).
To impart better professional attitude and improve communication skill towards patients, attendants and health workers.
To stick to continuous medical education and professional improvement.
To achieve the professional requirements to prepare for surgical Training in respective specialty.
To improve experience in otolaryngology.
To improve competence and professionalism in their specialty in order to diagnose investigate and

treat medical problems.
To improve management of acute emergencies and proper referral from Primary and Secondary Healthcare to tertiary care hospitals.
To contribute to achieve knowledge of recent advances in provision of healthcare.
To impart competence in training of the trainees.

Content list:

BASIC SCIENCES:

1. Anatomy

a. Head & Neck:
1. Anatomy of the ear, nose and throat.
2. Gross Anatomy of neck and chest in relation to trachea and oesophagus
3. Anatomy of the Central Nervous System with particular reference to ear, nose and throat
4. Blood supply, Nerve supply and the Lymphatic drainage of the ear, nose, throat and trachea, larynx, and accessory sinuses.
5. Head and neck
6. Salivary Glands
7. Larynx
8. Pharynx.
9. Oral Cavity
10.Paranasal Sinuses.
11.Nose.
12.Ear (sense of hearing enters via cranial nerve)

b. The Epithelial Tissue (Histology)

1. Axon terminals and synapses. Nerve fiber degeneration and regeneration.
2. Process of myelination in the peripheral nerves and the central nervous system.
3. Types of neuroglia and their functions.
4. Coverings of the axons in the peripheral nerves and the central nervous system.
5. The neuron, morphology of the perikaryon and its processes.
6. Specialized conducting tissue of the heart. The Neural Tissue
7. Fine structure of skeletal and cardiac muscle fibers, and its relationship to the mechanism
of contraction.
8. Structural and functional differences between the smooth skeletal and cardiac types of muscle.
9. Factors required for bone growth. The Muscular Tissue.
10.Structure of bone marrow. Cell lines seen in haemopoiesis.
11.Cartilage
12.General structural features of exocrine and endocrine glands The Connective Tissue
13. General characters of serous and mucous membranes

14. Their location in the body
15. General structure, functions and classification of epithelia

c. Development of the Head and Neck:

1. Concept of critical periods.
2. Factors known to be involved in the development of congenital anomalies especially related to the otolaryngological system.
3. Development and fate of the branchial grooves, arches and pouches. Their derivatives and anomalies.
4. Shaping of the head and neck. Common developmental anomalies associated.

2. Pathology

Pathological alterations at cellular and structural level in trauma, neoplasia, ischaemia, inflammation and infection affecting the ear, nose and upper respiratory tract

1. Types and causes of chronic inflammation, non-granulomatous & granulomatous.
2. Histologic hallmarks.
3. Distinction between acute and chronic (duration) inflammation.
4. Etiological factors and pathogenesis.
5. Chronic inflammation.
6. Sequelae of acute inflammation.
7. Exudates and transudate.
8. Cellular components and chemical mediators of acute inflammation.
9. Acute inflammation
10. Hyperplasia, Metaplasia, Aplasia Inflammation.
11. Atrophy, Hypertrophy,
12. Cellular adaptation
13. Necrosis and Gangrene
14. Fatty change, Pathologic classification
15. Reversible and Irreversible Injury
16. Immunoprophylaxis & Immunotherapy
17. Immunodeficiency disorders
18. Hypersensitivity
19. Transplantation immunology
20. Immunological tolerance, autoimmunity and autoimmune diseases.
21. Tumour immunology
22. Protective immunity to microbial diseases
23. Immune response
24. Immunity
25. Tumor staging system and tumor grade Immunity and Hypersensitivity
26. Different modes of metastasis
27. Etiological factors for neoplasia
28. Benign and malignant neoplasms
29. Dysplasia and Neoplasia
30. Difference between arterial and venous emboli Neoplasia
31. Pathogenesis and possible consequences of thrombosis

32. Compensatory mechanisms involved in shock
33. Shock; classification etiology, and pathogenesis, manifestations.
34. Etiology, pathogenesis, classification and morphological and clinical manifestations of Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
35. Basics in allergy and immunology
36. Use of investigation and procedures in laboratory
37. Personnel protection from communicable diseases
38. Immunization
39. Infection prevention
40. Sterilization and disinfection
41. Asepsis and antisepsis
42. Sources of infection
43. Surgically important microorganisms
44. Important parasites
45. Important viruses
46. Spores
47. Vegetative organisms
48. Pathogenic bacteria
49. Bacterial growth and death
50. Nosocomial infections
51. Infection source
52. Role of microbes in various otolaryngological disorders
53. Macroscopic and microscopic appearances of common or important diseases found in Otolaryngology
54. Indications for and interpretation of results of common biochemical and haematological tests

3. Pharmacology.

1. Ototoxicity and medication.
2. Drug use in pregnancy and in children.
3. Dialysis.
4. Drug Interactions
5. Drug Dependence, Addiction, Abuse and Tolerance
6. Allergic Responses
7. Harmful Responses
8. Beneficial Responses
9. Drug Effect
10. Creatinine Clearance
11. Elimination rate constant and half life
12. Elimination
13. Volume of Distribution
14. Desired Plasma Concentration
15. Metabolism
16. Distribution
17. Absorption
18. Pharmacokinetic Process
19. Pharmacokinetics
20. Mechanisms of Drug Action

21.Receptors
22.Introduction to Pharmacology
23.British Pharmacopeia
24.The Evolution of Medical Drugs

4. Physiology

1. Special senses, particularly hearing, balance and olfaction
2. Exocrine glands, particularly salivary glands
3. Shock and circulatory support
4. Endocrine glandular function, particularly thyroid, parathyroid and pituitary glands
5. Speech generation
6. Physiology of swallowing
7. Auditory pathway
8. Vestibular function in maintaining equilibrium
9. Middle ear impedance transformer mechanism
10. Physiology of hearing
11. Physiology of olfaction.
12. Functions of the nose
13. Sound Transmission
14. Physiology of ear, nose, throat and oesophagus

PRINCIPLES OF SURGERY

1. Operative procedures for common surgical manifestations e.g. cysts, sinuses, fistula, abscess, nodules, basic plastic and reconstructive surgery
2. Molecular biology and genetics
3. Informed consent and medicolegal issues
4. Organ transplantation
5. Principles of endoscopic sinus surgery
6. Principles of surgical oncology
7. Principles of burn management
8. Nutrition and metabolism
9. Wound healing and wound management
10. Accident and emergency surgery
11. Trauma: assessment of polytrauma, triage, basic and advanced trauma
12. Haemostasis, blood transfusion
13. Fluids and electrolyte balance/ acid base metabolism
14. Pathophysiology and management of shock
15. Acute life support and critical care:
16. Basic principles of anaesthesia and pain management
17. Surgical infections and antibiotics
18. Principles of operative surgery: asepsis, sterilization and antiseptics
19. Preparing a patient for surgery
20. History of surgery

Common Surgical Skills

I. Technical Skills

1. Initiate and monitor treatment
2. Role of duplex scanning, venography and d-dimer measurement
3. Awareness of symptoms and signs associated with pulmonary embolism and DVT
4. Place of pulmonary embolectomy

5. Role of V/Q scanning, CT angiography and thrombolysis
6. Anticoagulation, heparin and warfarin
7. Methods of investigation for suspected thromboembolic disease
8. Tests for thrombophilia and other disorders of coagulation
9. Clotting mechanism; Effect of surgery and trauma on coagulation
10. Bleeding diathesis & corrective measures, e.g. warming, packing
11. Diagnostic peritoneal lavage
12. Chest drain insertion
13. Central venous line insertion

II. Safely assess the multiply injured patient:

1. Referral to appropriate surgical subspecialties
2. Resuscitation and early management
3. Investigation
4. History and examination

III. Antibiotics:

1. Principles of prophylaxis and treatment
2. Antibiotic side-effects
3. Antibiotic sensitivities
4. Common pathogens in surgical patients

IV. Blood products:

1. Components of blood
2. Management of the complications of blood product transfusion including children
3. Alternatives to use of blood products

V. Post-operative care:

1. Critical care
2. Complications specific to particular operation
3. Initial management of organ failure
4. Detection of impending organ failure
5. Fluid and electrolyte management
6. Postoperative analgesia
7. Monitoring of postoperative patient

VI. Intraoperative care:

1. Principles of local, regional and general anaesthesia
2. Tourniquets
3. Radiation use and risks
4. Infection risks
5. Diathermy, laser use
6. Sharps safety
7. Safety in theatre

VII. Pre-operative assessment and management:

1. Management of comorbidity
2. Principles of day surgery
3. Risk factors for surgery
4. Pathophysiology of sepsis
5. Pathophysiology of blood loss
6. Renal failure
7. Diabetes mellitus

8. Cardiorespiratory physiology

VIII. Haemostasis:

1. Case work up and evaluation; risk management
2. Clinical decision making
3. Plan investigations
4. Clip application
5. Tie ligation
6. Suture ligation
7. Diathermy
8. Control of bleeding vessel (superficial)

IX. Closure of skin and subcutaneous tissue:

1. Accurate and tension free apposition of wound edges

X. Incision of skin and subcutaneous tissue:

1. Ability to use scalpel, diathermy and scissors

XI. Use of drains:

1. Management/removal
2. Fixation
3. Insertion
4. Types
5. Indications

XII. Tissue retraction:

1. Tissue forceps
2. Placement of wound retractors
3. Choice of instruments

XIII. Knot tying:

1. Deep
2. Superficial
3. Double handed
4. Single handed
5. Choice of material

XIV. Closure of skin and subcutaneous tissue:

1. Safe practice
2. Suture and needle choice
3. Options for closure

XV. Incision of skin and subcutaneous tissue:

1. Safe practice
2. Choice of instrument
3. Healing mechanism
4. Langer's lines

I. Head & Neck

OTOLARYNGOLOGY

1. Terminal Care of Patients with head & neck Cancer.
2. Plastic & reconstructive surgery of the head & neck.
3. Facial plastic surgery.
4. The esophagus in otolaryngology.

head & neck

5. Cysts, granulomas & tumours of the jaw, nose & sinuses.

6. Tumours of infratemporal fossa & parapharyngeal space.
7. Malignant salivary gland tumours.
8. Benign salivary gland tumours.
9. Non-neoplastic salivary gland diseases.
10. The thyroid & parathyroid gland.
11. Malignant neck diseases;
12. Benign diseases of neck.
13. Tumours / lymphomas of the head & neck.

I. Laryngology & Pharyngology

1. Examination & Endoscopy of upper aerodigestive tract.
2. Oral Cavity.
3. Acute & chronic infections of Pharynx & Larynx
4. Trauma & stenosis of Larynx
5. Acute & chronic laryngitis
6. Neurological affections of pharynx and larynx
7. Management of obstructed airway & tracheostomy
8. Sleep Apnea
9. Tumors of Pharynx and Larynx
10. Pharyngeal pouches
11. Foreign body airway
12. Diseases of nasopharynx

II. Nose (Rhinology)

1. Neoplasms of Nose, Nasopharynx & Paranasal sinuses.
2. Trans-Sphenoidal Hypophysectomy.
3. Aspects of Dental Surgery for Otorhinolaryngology.
4. Facial pain & Headache.
5. Non-Healing Granulomas.
6. Snoring & Sleep Apnoea.
7. Epistaxis.
8. Rhinoplasty.
9. Fracture of Facial Skeleton.
10. The Upper Airways & their relation to the respiratory System.
11. Cerebrospinal Fluid Rhinorrhoea.
12. Complications of Sinusitis.
13. Surgical Management of Sinusitis.
14. The Nasal Septum.
15. Nasal Polyps.
16. Intrinsic Rhinitis.
17. Infective Rhinitis & Sinusitis.
18. Food Allergy & Intolerance.
19. Mechanism & Treatment of Allergic Rhinitis.
20. Abnormalities of Smell.
21. Evaluation of the Nasal Airway & Nasal Challenge.
22. Congenital Anomalies of the Nose.
23. Conditions of the External Nose.
24. Reduction of turbinates

25. Submucusoal resection of septum
26. Reduction of fractured nose
27. Drainage of septal haematoma
28. Removal of simple foreign bodies.
29. Antral washout in the management of acute sinusitis
30. Biopsy of the nose and nasopharynx
31. Simple polypectomy
32. Insertion and removal of nasal pack and or balloon for epistaxis
33. Suction under endoscopic control of surgical cavity
34. Examination of the post nasal space
35. Flexible nasendoscopy
36. Rigid endoscopy
37. Examination of the nose and sinuses

III. Ear (Otology)

1. Implantable Hearing Devices.
2. Presbycusis.
3. Cochlear Implants.
4. Surgery of the Vestibular System.
5. Disorders of Facial Nerve.
6. Neoplasms of external, middle and internal ear.
7. Vestibular Schwannoma.
8. Ototoxicity.
9. Meniere's disease.
10. Vertigo its causes, investigations and management.
11. Sudden & Fluctuant Sensorineural Hearing Loss.
12. Conductive and Sensorineural Hearing Loss.
13. Diseases of Temporal Bone.
14. Otosclerosis.
15. Otalgia and its causes/management.
16. Plastic Surgery of the Ear.
17. Ear Trauma.
18. Diseases of External Ear, middle ear & internal ear
Congenital, inflammatory, traumatic, neoplastic & miscellaneous
19. Pathology of Vestibular System.
20. Pathology of Cochlea.
21. Clinical examination of vestibular function
22. Clinical examination of hearing
23. Approaches and types of mastoid surgery
24. Myringotomy and Grommet insertion
25. Tinnitus causes and management
26. Removal of simple foreign bodies
27. Examination under the microscope
28. Examination of the ear
29. Noise induced hearing loss

IV. Audiology

1. Rehabilitation of Balance Disorders.

2. Diagnostic Testing of Vestibular System
3. Central Auditory Dysfunction
4. Tactile Aids.
5. Cochlear Implants.
6. Hearing Aids.
7. Audiological Rehabilitation.
8. Causes of Hearing Disorders.
9. Hearing Overview.
10. Prevention of Hearing & Balance Disorders.
11. Legal & Ethical Matters.
12. Pharmacological Treatment of Hearing & Balance Disorders.
13. Clinical tests of Hearing & Balance.
14. Otological Symptoms & Emotional Disturbances.

V. Paediatric Otolaryngology

1. Congenital Anomalies of the Nose, Ear,Palate, Neck,oesophagus and larynx.
2. Foreign Bodies in the Ear, Nose and Throat.
3. Speech & Language.
4. Vestibular Disorders in Children.
5. Cochlear Implantation in Children.
6. Management of Hearing Impaired Child.
7. Surgery of Congenital Abnormalities of the External & Middle Ear.
8. Diseases of external ear inflammatory/traumatic/neoplastic/miscellaneous.
9. Diseases of middle ear inflammatory/traumatic/neoplastic/miscellaneous.
10. Otitis Media with Effusion.
11. Screening & Surveillance for Hearing Impairment in Preschool Children.
12. Testing Hearing in Children.
13. The Causes of Deafness/investigations/management.
14. Genetic Factors & Deafness.
15. Improving Paediatric Otolaryngological Consultation.
16. Adenoids and Tonsils
17. Epistaxsis/causes and management
18. Stridor/Stertor causes and management
19. Recurrent respiratory papillomatosis
20. Infammatory diseases of nose and paranasal sinusis
21. Paediatric voice disorders
22. Airway obstruction/causes and management
23. Tumors of head and neck
24. Salivary Glands Disorders in Children.
25. Branchial cleft Anomalies, Thyroglossal cysts & Fistulae.
26. The Drooling Child.
27. Diseases of the Esophagus
28. Home care of Tracheostomised Child.
29. Tracheostomy & Decannulation.
30. Inflammatory diseases of pharynx and larynx
31. Stenosis of Larynx
32. Congenital Disorders of Larynx, Trachea & Bronchi.

33. Sleep Apnoea.
34. Cleft lip& Cleft palate.
35. Nasal Obstruction & Rhinorrhoea in Infants & Children.

VI. ENT Emergencies

1. Facial Trauma
2. Laryngeal and Tracheal Trauma.
3. Head and Neck Infections.
4. Ear Complaints.
5. Epistaxsis.
6. Sore Throat or Difficulty Swallowing.
7. Inspired or Ingested Foreign Bodies.
8. Airway Obstruction.

VII. Rehabilitation

1. Initial management of facial fractures
2. Initial epistaxis and its management
3. Initial management of foreign bodies in ENT
4. Initial assessment and management of airway problems
5. Suture techniques and materials
6. Wound care and nosocomial infection
7. Prevention and management
8. Thrombo-embolic
9. Pain relief in surgery
10. The role/complications of diathermy
11. Use of blood and its products
12. Administration of antibiotics in the surgical patient
13. Powered instruments
14. Intra -Arterial Local Chemotherapy
15. Computer assisted surgeries
16. Gamma Knife
17. Ultrasonic scalpel
18. Advances in laser in ENT applications
19. Radiotherapy, Brachytherapy, Chemotherapy, Palliative Care Recent Advances:
20. Cochlear implants
21. Bone anchored hearing aids
22. Hearing aids
23. Management of hearing loss
24. Rehabilitation following maxillectomy – obturator
25. Speech rehabilitation following laryngectomy

VIII. Radiological Interpretations:

1. Ultrasound of the neck
2. Contrast radiology of swallowing, sialography
3. MRI scans of the sinuses, brain, neck, chest, head
4. CT scans of the sinuses, petrous bone, neck, chest and brain
5. Plain films of the head, neck, sinuses and chest.

IX. Vestibular and Audiology testing

1. Electroencephalography

2. Electroneuronography
3. Electromyography
4. Lumbar puncture
5. Ophthalmoscopy
6. Clinical neurological examination
7. Technique of mould impression
8. Familiarity with different types of hearing aids
9. Rotating chair test
10. Electronystagmography
11. Cortical evoked audiometry
12. Otoacoustic emissions
13. Brain stem evoked response audiometry
14. Simple tests for hearing including a pure tone audiogram, loudness discomfort levels and a tympanogram
15. Interpretation of report from an Audiologist

Section D:

PROGRAMME FORMAT

SCHEME OF THE COURSE OF MS Otorhinolaryngology

The residents will work for three and a half years in department of Otolaryngology and six months in other departments on rotation.

Course Structure	Components	Duration
Year 1 & 2	Basic Knowledge of anatomy, physiology and pathology of otorhinolaryngology. Basic surgical principles, emergency patient management, inpatient & outpatient care. History taking, synopsis completion & case presentation. Management of basic ENT disorders.	18 months stay in Otolaryngology 06 months(02 rotations) in General surgery and neurosurgery
Year 3 & 4	Training in clinical techniques in otolaryngology, professional education, thesis completion, surgical procedures, detailed otolaryngology disease management	2 Years stay in Otolaryngology

Rotations:

Residents of MS otorhinolaryngology will perform following two rotations within first two years of residency

Serial no.	Rotations	Duration	Placement
1.	General surgery	03 months	In First two years
2.	Neurosurgery	03 months	In First two years

Section E:

Assessment Plan:

Program duration	Course contents	Assessment method
At the end of 2nd year of program	1. Revision of core MBBS component including basic and clinical components. 2. Basic knowledge and Acquiring skill related to the specialty according to the objectives made. 1. First 2 mandatory Workshops as described in course outline. 3. Submission of synopsis	**Intermediate Examination:** to be taken by university. It will include: a) Written=300 b) TOACS/ OSCE /LONG CASE/ SHORT CASE=300 **Total Marks =600**
At the end of 4th year	1. Training to act as an individual while managing patient or performing any task as defined by the objectives. 2. Training to act as a teacher, researcher, leader and a player in a	**Final Examination** to be conducted by university. It will include:

	team. 3. Overall development of a health care professional with all the set competencies of the Program. 4. All the mandatory and specialty oriented workshops to be completed as mentioned in the curriculum 5. Rotations as described in the curriculum completed 6. Thesis completion and submission	a) Written=300 b) TOACS/OSCE/LONG CASE/SHORT CASE=300 c)Continuous internal assessment=100 Thesis evaluation =300 **Total marks=600+100+300=** **1000**

Components of Intermediate Examination/intermediate examination

- Written: Total Marks =300
- Clinical, TOACS/OSCE = 300

Total = 600

Components of Final Examination:

- Written: 300 Marks
- Clinical, TOACS/OSCE = 300 Marks
- Continuous internal assessment =100
- Thesis Evaluation = 300 Marks

Total = 1000 Marks

Intermediate Examinations:

Intermediate examination would be conducted for the candidate getting training, at the end of 2nd calendar year of the program.

Eligibility Criteria:

1. Candidate remained on institution roll during the period approved for appearing in examination.
2. Certificate of completion of mandatory workshops.
3. Completion of Log book signed by supervisor/concerned Head of Department.
4. Certificate of submission of Ethical Review Committee approved synopsis to the university if required as per rules of synopsis submission.
5. Evidence of payment of examination fee as prescribed by the University from time to time.
6. Certificates submitted through Principal/Dean/Head of academic institution shall be accepted as valid towards the candidature of an applicant.
7. submission of application for the examination and the conduct of examination.
8. The candidate will present certificates for communication skills, research writing and basic surgical skills

Intermediate Examination Schedule and Fee:

a) Intermediate Examination at completion of two years training, will be held twice a year.

b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.

c) Examination fee will be determined periodically by the University.

d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.

e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

Written Examination:

The written examination will consist of 100 single best answer type Multiple Choice Questions. Each correct answer in the multiple-choice question paper will carry 02 marks. The short essay question will be clinical scenario or practice based, and each question will carry 10 marks.

The marks of written exam will be divided as follows:

- MCQs 100 (single best type) = 200 Marks
- SEQ (10 marks) =100

Declaration of Results

The candidates scoring 60% marks in the written examination will be considered pass and will then be eligible to appear in the clinical and oral examination.

Clinical, TOACS/OSCE:

The clinical and TOAC/OSCE & Oral examination will evaluate patient care competencies in detail,

The examination will be of 300 total marks consisting of the following components

Clinical, TOACS/OSCE = Total Marks 300

a) 4 short Cases (25 each) = 100 marks

b) 1 Long Case = 100 marks

c) TOACS/OSCE & ORAL =100 marks (10 stations with 10 marks each)

- Each short case will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion.

- The long case and oral examination will each be of 30 minutes duration.

Declaration of Results

- A student scoring 60% in long case, 60% in short cases and 60% in TOACS/OSCE will be considered pass in the examination.
- A maximum total of four consecutive attempts (availed or un availed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above-mentioned limit of four attempts, the candidate shall have to take entire intermediate examination including written examination again.

Final Examination

(At the end of 4th Calendar year of the program)

Eligibility Criteria:

To appear in the Final Examination, the candidate shall be required:

1. Result card showing that the candidate has passed intermediate Examination.

2. Certificate of completion of 4 Years training duly signed by Supervisor, Head of parent Department and that of the Head of Department where rotations were done (if prescribed in the curriculum).
3. Evidence of thesis submission to Department of Examination of the University.
4. Evidence of payment of examination fee as prescribed by the university from time to time.
5. The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
6. Candidate remained on institution roll during the period required for appearing in examination.
7. Only those certificates, submitted through Principal/Dean/Head of academic institution shall be accepted.

Final Examination Schedule and Fee:

a) Final examination will be held twice a year i.e. at least six months apart.
b) Examination fee will be determined and varied at periodic intervals by the University.
c) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
d) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Written Part of Final Examination

a) The written examination will consist of 100 single best answer type Multiple Choice Questions (MCQs) and 10 Short Essay Questions (SEQs). Each correct answer in the Multiple-Choice Question paper will carry 02 marks. Each Short Essay Question will carry 10 marks.

b) The Total Marks of the Written Examination will be 300 and to be divided as follows:

- Multiple Choice Question Paper Total Marks = 200
- Short Essay Question Paper Total Marks = 100

Total=300

Paper 1

- MCQs 100 (2marks each)

Paper 2

- SEQs 10 (10 marks each)

a. Paper 1 shall comprise of hundred (100) "single best answer" type Multiple Choice Questions. Each Question shall carry 02 marks.

b. Paper 2 shall comprise of ten (10) Short Essay Questions, each carrying 10 marks.

Declaration of Results

c. The candidates scoring 60% marks in aggregate of Paper 1 and Paper 2 of the written examination will be declared pass and will become eligible to appear in the Clinical Examination.

Clinical, TOACS/OSCE:

a) The Clinical Examination will consist of 04 short cases, 01 long case and TOACs/OSCE with 01 station for a pair of Internal and External Examiner. Each short case will be of 10 minutes duration, 05 minutes will be for examining the patient and 05 minutes for discussion.

b) The Total Marks of Clinical and TOACs/OSCE & Oral will be 300 and to be divided as follows:

- Short Cases (4) Total Marks = 100
- Long Case (1) Total Marks = 100
- TOACS/OSCE & ORAL Total Marks = 100

Total= 300

Declaration of Results

- A student scoring 60% in long case, 60% in short cases and 60% in TOACS/OSCE will be considered pass in the examination.

- Candidate, who passes written examination, shall be allowed a maximum of Three availed attempts within two years to pass the clinical and oral examination. However, in case of failure to pass Clinical examination within stipulated attempts the credit of passing the written examination shall stand withdrawn and candidate shall have to take entire examination including written examination, afresh. The candidate who has completed his or her training along with all the requirements mentioned in the curriculum shall have to appear in the written of final examination within a period of seven years (from the time of induction) at least once. Failure to comply with this, the case will be referred to the competent authority through proper channel for final decision.

Synopsis and Thesis Writing:

Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the program.

Thesis evaluation & defense will be carried out at the end of 4th calendar year of MS

Submission / Evaluation of Synopsis; 300 marks

a) The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on the university website.

b) The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.

c) Synopsis of research project shall be got submitted by the end of the 2nd year of MS/MD program. The synopsis after review by an Institutional Review Committee, shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission and evaluation of Thesis Evaluation (300 Marks)

1. The Thesis shall be submitted to the Controller of Examination through Head of Institute, duly signed by the Supervisor, Co-Supervisor(s) and Head of the Department.
2. Submission of Thesis is a prerequisite for taking Final Theory Examination.
3. Examiners shall be appointed by the Vice chancellor on recommendation of Controller of Examination from a panel approved by Advance Studies & Research Board for evaluation of thesis.
4. All MS thesis shall be evaluated by two examiners, one internal and one external (The supervisor must not be the evaluator).
5. Thesis defense shall be held after approval of evaluation reports by Advanced Studies & Research Board.
6. Thesis defense shall be conducted by the external examiners who evaluated Thesis of the candidate.
7. The candidate scoring 60% marks in Thesis defense examination will be declared as pass in the examination.

Continuous Internal assessment

It will consist of professional growth oriented student-centered integrated assessment with an additional component of formative assessment and measurement-based summative assessment.

Attendance

- Students joining postgraduate training program shall work as full-time residents during the duration of training maximum 2 leaves are allowed in one month, and should take full responsibility and participation in all facets of the educational process. The period of training for obtaining degrees shall be four completed years

Presentations

- In addition to the conventional teaching methodologies interactive strategies will also be introduced to improve both clinical and communication skills in the upcoming consultants. Presentations must be conducted regularly as scheduled and attended by all available faculty and residents. As a policy, active participation of the postgraduate resident will be encouraged. Proper written feedback will be given for these presentations and that will be a part of Resident's Portfolio as well. Reflection of the events to be written by the residents as well and must be included in their portfolios.

Task evaluation

- This competency will be learned from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigations, root cause analysis and awareness of healthcare facilities. Active participation and ability to fulfill given tasks will be encouraged. Written feedback must be given and documented to be included in portfolio

Continuous Internal Assessment format (100 Marks)

1. The award of continuous internal assessment shall be submitted confidentially in a sealed envelope.
2. The supervisor shall submit cumulative score of internal assessment of all training years to be added together to provide a final cumulative score of

Continuous Internal Assessments of all the trainees to the Head of the Department/ Dean of Post Graduate studies.

3. The Head of Department/ Dean shall submit the continuous internal assessment score through the Principal/ Registrar office to the Examination Department of the University. Score of continuous internal assessment once submitted shall be final and cannot be changed subsequently under any circumstances.
4. The weightage of internal assessment in the final examination will be 10%.
5. Continuous Internal Workplace Based Assessments will be done by the supervisors, that may be based on but not limited to:
    a. Generic and Specialty Specific Competency Assessments
    b. Multisource Feedback Evaluations
    c. Assessment of Candidates' Training Portfolio

TOOLS OF ASSESSMENT FOR THE COURSE:

TOOL USED:	DOMAIN TESTED:
MCQs	Knowledge
SEQs	Knowledge
TOACS/OSCE	Knowledge. Skill Attitude

PRESENTATIONS (wards, seminars, conferences, journal clubs)	Knowledge. Skill Attitude
Portfolios and log books.	Skill Attitude
Short cases.	Knowledge Skill Attitude
Long cases	Knowledge Skill Attitude
Continuous internal assessment	Skill Attitude

Feedback from department where rotation is being conducted.	Knowledge Skill Attitude

Section F

Award of MS (Otorhinolaryngology) Degree

A candidate having declared successful in all the components of examination i.e. **Theory, Clinical and Thesis** shall be declared pass and shall be conferred degree in the otorhinolaryngology.

Section G:

Log Book

As per format approved by the university (Available at university website)

Section H

Portfolio:

As per format approved by the university

Section I

Paper Scheme

Written Paper Intermediate Examination

Principals of the relevant subject = 70 MCQs (140 Marks)
07 SEQs (70 Marks)

Basic Sciences 30 MCQs (60 Marks)
03 SEQs (30 Marks)

(Anatomy = 8 MCQs 1 SEQ

Pharmacology = 4 MCQs Nil

Pathology = 10 MCQs 1 SEQ

Physiology = 8 MCQs 1 SEQ)

Sr. No.	Topic	No. of MCQs	Level	No. of SEQs
1.	**Otorhinolaryngology**	**70**	**C1, C2, C3**	**7**
	1. Surgical Anatomy of Ear, Nose & throat	03	C1	Nil
	2. Physiology of Ear, Nose & throat	03	C1	Nil
	3. Investigations in Otorhinolaryngology	03	C2	Nil
	4. Congenital disorders in ENT	02	C1, C2	Nil
	5. Diseases of Ear	10	C2, C3	01
	6. Diseases of nose	10	C2, C3	01
	7. Diseases of Pharynx	10	C2, C3	01

	8. Diseases of Larynx	10	C2, C3	01
	9. Diseases of esophagus	03	C2, C3	01
	10. Disorders of neck & thyroid	03	C2, C3	Nil
	11. Head & neck trauma	03	C2, C3	01
	12. Head & neck Tumors	10	C2, C3	01
2.	**Basic sciences**	**30**	**C1**	**3**
	Anatomy	8	C1	1
	Pharmacology	4	C1	Nil
	Pathology	10	C1	1
	Physiology	8	C1	1

Written Paper Final Examination

Written

MCQs 100 (200 Marks)

SEQs 10 (100 Marks)

Sr. No.	Topic	No. of MCQs	Level	No. of SEQs
1	Surgical Anatomy of Ear, Nose & throat	05	C1	Nil
2	Physiology of Ear, Nose & throat	05	C1	Nil
3	Investigations in Otorhinolaryngology	05	C2	01
4	Congenital disorders in ENT	05	C1,2	01
5	Diseases of Ear	11	C2,3	01
6	Diseases of nose	11	C2,3	01
7	Diseases of Pharynx	11	C2,3	01
8	Diseases of Larynx	11	C2,3	01
9	Diseases of esophagus	11	C2,3	01
10	Disorders of neck & thyroid	10	C2,3	01
11	Head & neck trauma	05	C2,3	01
12	Head & neck Tumors	10	C2,3	01

Section J

Resources and references (books and other resource material)

Grey's Anatomy

Guyton Physiology, Ganong's Physiology

Robins Pathology

Catzung's Pharmacology

Schwartz's Principles of Surgery

Scott Brownis Text Book of Head & Neck Surgery Otolaryngology

Bailey's Head & Neck Surgery Otolaryngology

Cummings Otolaryngology: Head & Neck Surgery

Stell and Maran's Head & Neck Surgery and Otolaryngology

P L Dhingra: Diseases of Ear, Nose & Throat

Logan Turner's: Diseases of Ear, Nose & Throat

Section K

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Signed by head of Department