



OTOLARYNGOLOGY

**Residency Training Program
Leading to the degree of**

Master of Surgery (MS Otolaryngology)

**SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY
ISLAMABAD**

DEDICATION

Dedicated to all faculty Members of Curriculum Committee whose persistent efforts in the field of medical education will always be reminisced.



PREFACE

The Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU), a public sector federal University, was established in the premises of postgraduate medical institute, Pakistan Institute of Medical Sciences, Islamabad by an ordinance of national assembly on 21 March, 2013.

Since its inception the university has made an impact in the field of healthcare, undergraduate, postgraduate medical education and research pertaining to grave health problems faced by our country. The Shaheed Zulfiqar Ali Bhutto Medical University is offering 27 post-graduation MD/MS programs. Currently the University is offering 11 Master of Surgery (MS) Programs in field of Surgery and Allied. These are four to six years' programs, classified as a Level III degree by Pakistan Medical Council and fall within Level 7 Category, as per National Qualifications Framework, Higher Education Commission of Pakistan.

In order to meet the standards of the World Federation of Medical Education a paradigm shift has ensued in the field of medical education. The standards provide a template for Institutes carrying out Post Graduate Programs. This led to developing the curriculum as per international standards of Medical Education and in congruence with the cultural, regional and demographic facets of the country.

Department of medical education of SZABMU started functioning in 2014. DME is headed by Dean and has various co-opted members including Dr. Fouzia Sultana and Dr. Zainab Abdullah who worked diligently and integrated the undergraduate curriculum in October 2021. It was also made possible by the conscientious efforts of different curriculum committees who clipped it according to the requirement of Higher Education Commission. The final draft of the curriculum is an attribute to all those who remained involved in the planning, development and evaluation of the curriculum.

Prof. Tanwir Khaliq
Vice Chancellor, SZABMU

ACKNOWLEDGEMENTS

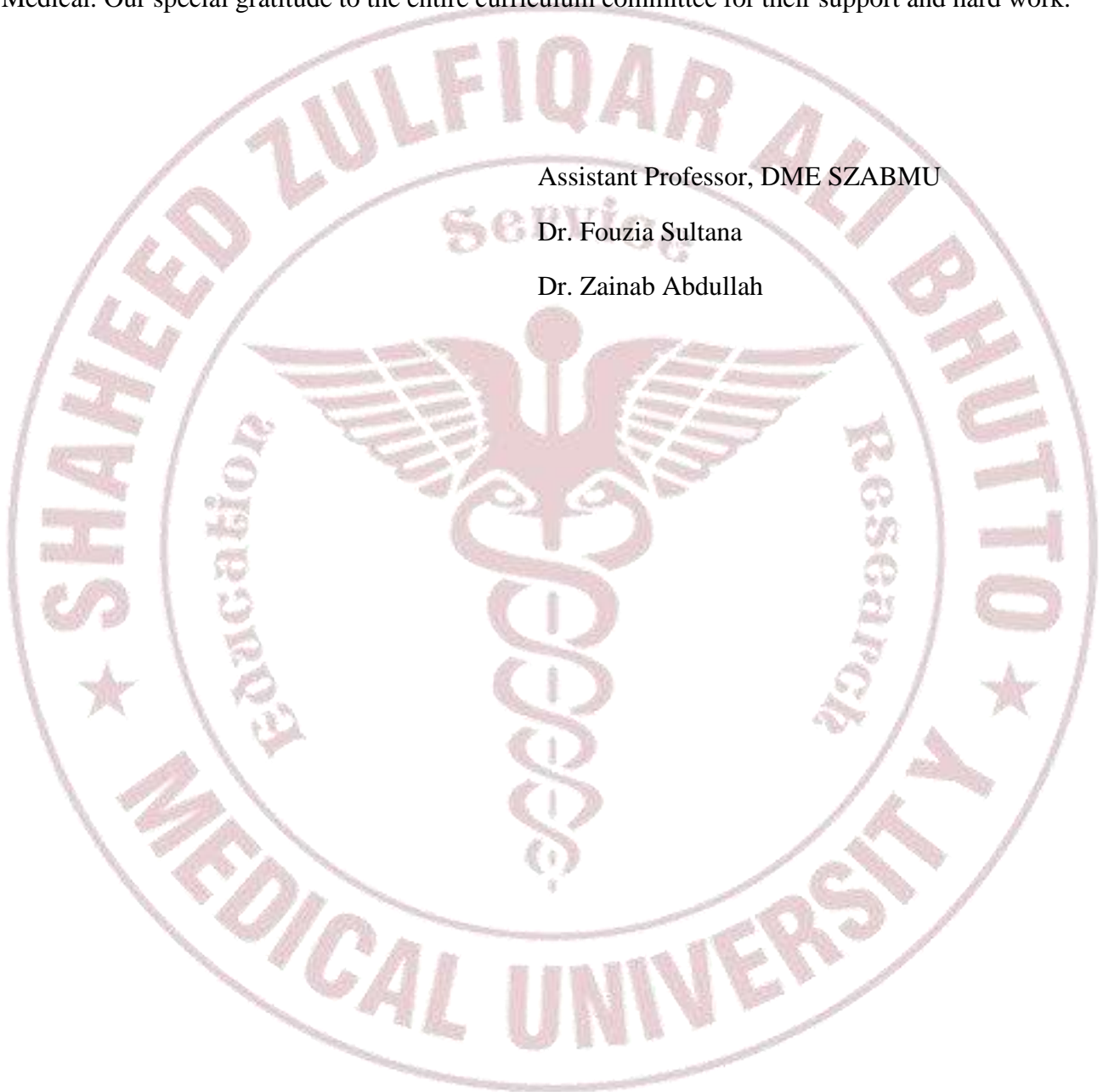
We would like to express our gratitude and appreciation to all those who gave us the opportunity to complete the curriculum.

Department of Medical Education is very grateful to the Worthy Vice Chancellor Prof. Tanwir Khaliq for his vision in initiating the revised curriculum for MS programs in Shaheed Zulfiqar Ali Bhutto Medical. Our special gratitude to the entire curriculum committee for their support and hard work.

Assistant Professor, DME SZABMU

Dr. Fouzia Sultana

Dr. Zainab Abdullah





CURRICULUM

Master of Surgery (MS)

Otolaryngology (ENT)

CURRICULUM DEVELOPMENT COMMITTEE

This Curriculum is developed by the following committee:

- **Prof. Altaf Hussain**
Assistant Professor of Otolaryngology,
Pakistan Institute of Medical Sciences,
Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad



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ROAD MAP OF MS OTOLARYNGOLOGY

(A Brief Summary)

GENERAL INFORMATION AND PROGRAM GOALS:

The Shaheed Zulfiqar Ali Bhutto Medical University is offering 21 post-graduation programs of various levels in different specialties in medicine. The University came into being in 2013 and over a course of time she has produced intelligent health care professionals with unique leadership attributes and professional proficiency.

The Curriculum focuses on formal teaching, acquisition of knowledge, skill and competence

Duration of Course

The duration of MS Otolaryngology course shall be four (4) years with structured training in a recognized department under the guidance of an approved supervisor. After admission in M.S. Otolaryngology Programme the resident will spend first 6 Months in the relevant Department of Otolaryngology as Induction period during which resident will get orientation about the chosen discipline and will also undertake the mandatory workshops. The research project will be designed and the synopsis be prepared during this period.

On completion of the induction period the resident will start formal training in the Basic Principles of General Surgery for 06 Months. At the end of one calendar year the candidate will take up the Abridged Examination.

During 2nd, 3rd & 4th years, of the Programme there shall be two components of the Programme. The Research Synopsis must be got approved by AS&RB of the University within first two years of the Programme.

1. Clinical Training in Otolaryngology
2. Research and Thesis writing

General Information

The candidate shall undertake clinical training to achieve educational objectives of M.S. Otolaryngology (knowledge & Skills) along with rotations in the 3rd year of the programme as follows:

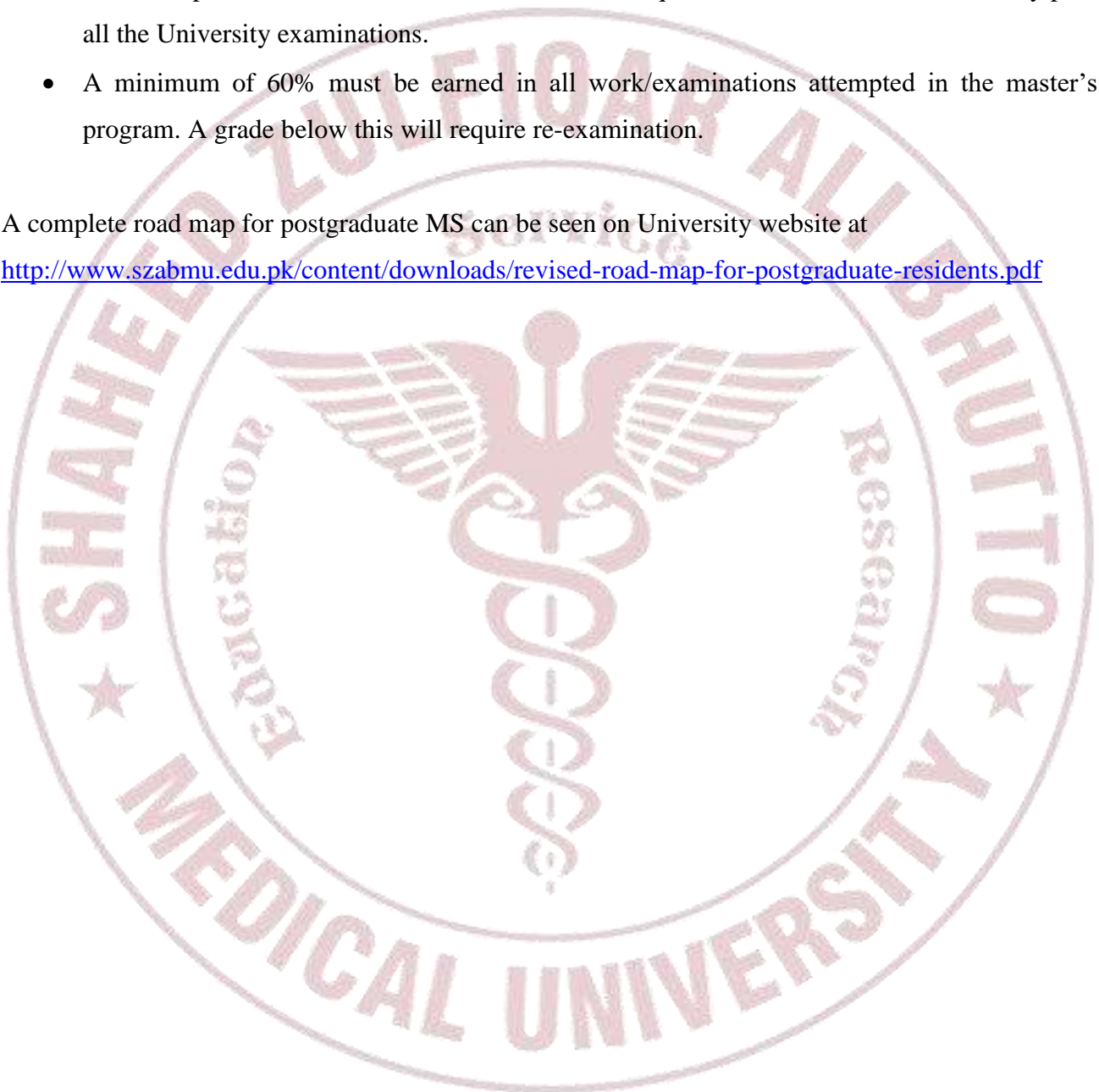
1. 3 months in Plastic Surgery
2. 3 months in Neurosurgery

Requirements of MS Otolaryngology (ENT) to Enroll Graduate Students in the Program

- Fulfillment of University requirements for postgraduate study.
- Four (4) years of consecutive full-time advanced study and clinical training.
- Complete and approved master's thesis based on original research during the course of study in an area related to specialty, suitable for publication in a reputable medical & surgery journal.
- Must complete all didactic & clinical work in the required curriculum and satisfactorily pass all the University examinations.
- A minimum of 60% must be earned in all work/examinations attempted in the master's program. A grade below this will require re-examination.

A complete road map for postgraduate MS can be seen on University website at

<http://www.szabmu.edu.pk/content/downloads/revise-road-map-for-postgraduate-residents.pdf>





RATIONALE

RATIONALE:

Need of program

This training program is structured keeping in view the need of the society. Effective provision of neurosurgical facilities to the public at large especially in remote areas is need of the hour. An institute yielding proficient surgeons, well aware of the recent statutes of health care, is duly requires as a valuable addition to the health care system.

Purpose of training

The purpose of this curriculum is to guide the training of an individual to the core level of competence required for specialist and consultant. This training will produce consultant who are specialists in their field.

Context of Training

To provide an organized educational program with guidance and supervision, a structured training program will be followed so that each trainee is exposed to different aspects of the subject and acquires special knowledge and skill as expected in this program. The training will provide a basis for the candidate to develop into a lifelong learner who is capable of self-reflection and self-directed learning. It will provide a basis for further ongoing development in the field.

Duration of training

The program leading to MS in Otolaryngology will be of 04 years full time programme.



AIMS & OBJECTIVES

AIMS & OBJECTIVES

Aims of Training

The aim of four years MS programme in Otolaryngology is to train residents to acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

General Objectives

MS Otolaryngology training should enable a student to:

1. Access and apply relevant knowledge to clinical practice:
 - Maintain currency of knowledge
 - Apply scientific knowledge in practice
 - Appropriate to patient need and context
 - Critically evaluate new technology
2. Safely and effectively performs appropriate surgical procedures:
 - Consistently demonstrate sound surgical skills
 - Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
 - Demonstrate manual dexterity required to carry out procedures
 - Adapt their skills in the context of each patient and procedure
 - Maintain and acquire new skills
 - Approach and carries out procedures with due attention to safety of patient, self and others
 - Critically analyze their own clinical performance for continuous improvement
3. Design and implement effective management plans:
 - Recognize the clinical features, accurately diagnose and manage neurological problems
 - Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination
 - Formulate a differential diagnosis based on investigative findings
 - Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
 - Recognize disorders of the nervous system and differentiate those amenable to surgical treatment
 - Effectively manage the care of patients with ENT trauma including multiple system trauma

- Effectively recognize and manage complications
 - Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
 - Indicate alternatives in the process of interpreting investigations and in decision-making
 - Manage complexity and uncertainty
 - Consider all issues relevant to the patient
 - Identify risk
 - Assess and implement a risk management plan
 - Critically evaluate and integrate new technologies and techniques.
4. Organize diagnostic testing, imaging and consultation as needed:
- Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
 - Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
 - Critically evaluates the advantages and disadvantages of different investigative modalities
5. Communicate effectively:
- Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
 - Communicate with the patient (and their family) the treatment options including benefits and risks of each
 - Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
 - Initiate the resolution of misunderstandings or disputes
 - Modify communication to accommodate cultural and linguistic sensitivities of the patient
6. Recognize the value of knowledge and research and its application to clinical practice:
- Assume responsibility for self-directed learning
 - Critically appraise new trends in Otolaryngology
 - Facilitate the learning of others.

7. Appreciate ethical issues associated with Otolaryngology:
 - Consistently apply ethical principles
 - Identify ethical expectations that impact on medico-legal issues
 - Recognize the current legal aspects of informed consent and confidentiality
 - Be accountable for the management of their patients.
8. Professionalism by:
 - Employing a critically reflective approach to Otolaryngology
 - Adhering with current regulations concerning workplace harassment
 - Regularly carrying out self and peer reviewed audit
 - Acknowledging and have insight into their own limitations
 - Acknowledging and learning from mistakes
9. Work in collaboration with members of an interdisciplinary team where appropriate:
 - Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
 - Develop a care plan for a patient in collaboration with members of an interdisciplinary team
 - Employ a consultative approach with colleagues and other professionals
 - Recognize the need to refer patients to other professionals.
10. Management and Leadership
 - Effective use of resources to balance patient care and system resources
 - Identify and differentiate between system resources and patient needs
 - Prioritize needs and demands dealing with limited system resources.
 - Manage and lead clinical teams
 - Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team.
 - Maintain clinically relevant and accurate contemporaneous records
11. Health advocacy:
 - Promote health maintenance of patients
 - Advocate for appropriate health resource allocation
 - Promote health maintenance of colleagues and self scholar and teacher

Specific Learning Outcomes

On completion of the training program, Otolaryngology trainees pursuing an academic pathway will be expected to have demonstrated competence in all aspects of the published syllabus. The specific training component would be targeted for establishing clearly defined standards of knowledge and skills required to practice Otolaryngology at secondary and tertiary care level with proficiency in the Basic and applied clinical sciences, Basic Otolaryngologic care, ENT intensive care, Emergency (A&E) medicine and Complementary surgical disciplines.

1. **Cognitive knowledge:** Describe embryology, applied anatomy, physiology, pathology, clinical features, diagnostic procedures and the therapeutics including preventive methods, (medical/surgical) pertaining to Otolaryngology and 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:
3. **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 tumours, 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.
4. **Rhinology:** Able to diagnose and manage nasal 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.
5. **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 diagnose oncologic conditions such as laryngeal carcinoma and plan its therapy strategies.

6. **Oral cavity/salivary glands:** Learn about Oral cavity and salivary gland diseases, their diagnosis and therapy planning with referral strategies for cancer patients to advanced cancer centers/ Hospital.
7. **Head/Neck conditions/diseases:** Learn about head and neck diseases including Parotid gland and thyroid diseases, neurogenic tumours and neck space infections/and their management.
8. **Broncho-esophageal region:** Learn about broncho-esophageal diseases/disorders such as congenital disorders, diagnosis of Foreign bodies in wind/food pipes with their management policies. Capable to perform panendoscopies for oncologic evaluation in the head-neck region, including oesophageal malignancy.
9. **Plastic reconstruction following major head neck surgery & trauma:** Acquire general principles of reconstructive surgery and its referral needs.
10. **Advanced Surgical methods:** Acquire knowledge about phonosurgery like microlaryngoscopic surgery, palatopharyngoplasty for VPI & Cleft palate, and thyroplasty for voice-disorders.
11. **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.
12. **Traumatology & Facio-maxillary Injury:** Acquire knowledge in the management of Traumatology in general and facio-maxillary 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.
13. **Radiology:** Acquire knowledge about radiology/imaging and to interpret different radiological procedures and imaging in Otolaryngology – Head and Neck and skull base regions. There should be collaboration with Radiology department for such activities.
14. **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.
15. **Psychologic and social aspect:** Some elementary knowledge in clinical Psychology and social, work management is to be acquired for management of patients, especially

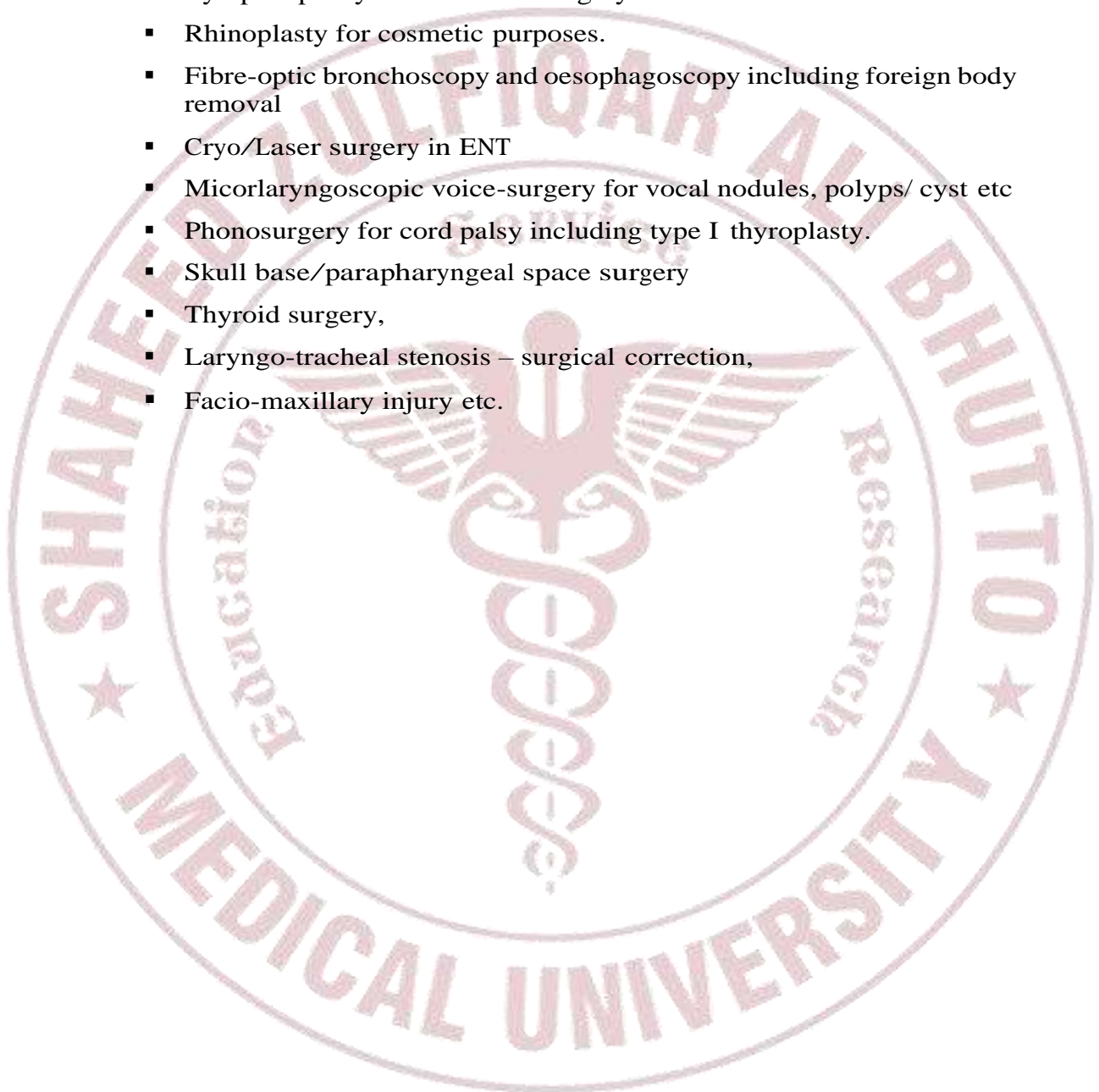
those terminally ill and disable-persons and interacting with their relatives.

16. **Preventive Otolaryngology:** 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).
17. **Identification of a special areas within the subject:** To further develop higher skills within the specialty in a specialized are 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 Programme in one of such areas like Otology.
18. **Research Experience:** All residents in the categorical program are required to complete an academic outcomes- based research project during their training. This project can consist of original bench top laboratory research, clinical research or a combination of both. The research work shall be compiled in the form of a thesis which is to be submitted for evaluation by each resident before end of the training. The designated Faculty will organize and mentor the residents through the process, as well as journal clubs to teach critical appraisal of the literature.

PRACTICAL TRAINING

1. A Resident doctor, pursuing MS Degree course is expected to perform major and minor surgical procedures first through observation and then under supervision of a supervisor/faculty member till he/she is proficient to perform major and minor surgical maneuvers independently such as: (Few examples only given):
 - Tracheostomy
 - Tonsillectomy
 - Adenoidectomy/grommet insertion,
 - Nasal Polypectomy
 - Incision/drainage of quinsy/other abscesses,
 - S.M.R. & Septoplasty
 - Cortical mastoidectomy
 - Modified radical Mastoidectomy.
2. Be able to manage common emergencies like, fracture nasal bone, stridor requiring a tracheostomy, epistaxis, subperiosteal abscess, and Peritonsillar abscess.
3. He/she should be capable to do minor operations independently (Few examples only given)
 - Myringotomy and myringoplasty
 - Antral washout and nasal biopsy
 - Sub-mandibular salivary gland removal
 - Biopsy from a neck mass, such as a node
 - Direct Laryngoscopy
 - Nasopharyngoscopy
 - Flexible Bronchoscopy and Oesophagoscopy
 - Aural polypectomy
 - Fibre-optic rigid endoscopy of oesophagus
 - He/she should be able to do the following operations under supervision/guidance of senior colleagues/ faculty member (Few examples only given):
 - Maxillectomy (Partial and Total)
 - Superficial Parotidectomy
 - Radical block dissection of the neck for metastatic nodes.
 - Total Laryngectomy for cancer.
 - Laryngofissure
 - Repair of laryngotracheal trauma.
 - Ligation external carotid artery
4. He/she should be able to do under guidance/supervision the following specialized operative procedures (Few examples only given):

- Facial nerve decompression
- Pinna-Repair (Post-traumatic)
- Surgery of choanal atresia,
- External canal atresia-surgery,
- Functional endoscopic/sinus surgery,
- Stapedectomy
- Tympanoplasty with mastoid surgery
- Rhinoplasty for cosmetic purposes.
- Fibre-optic bronchoscopy and oesophagoscopy including foreign body removal
- Cryo/Laser surgery in ENT
- Microlaryngoscopic voice-surgery for vocal nodules, polyps/ cyst etc
- Phonosurgery for cord palsy including type I thyroplasty.
- Skull base/parapharyngeal space surgery
- Thyroid surgery,
- Laryngo-tracheal stenosis – surgical correction,
- Facio-maxillary injury etc.



PROCEDURES TO BE LEARNED BY MS TRAINEES

1st year

Procedures	Under Supervision	Assist	Independently
F.B Removal From Nose	2	1	15
F.B Removal From Ear	2	1	15
Anterior Nasal Packing	2	1	10
posterior Nasal Packing	1		5
Tonsillectomy	3	3	10
Tracheostomies	3	3	10
Esophagoscopy		3	
Bronchoscopy		7	

02nd Year

Procedures	Under Supervision	Assist	Independently
Septoplasty	3	3	10
Intranasal Polypectomy	2	5	3
CWL	2		
Myringotomy + Grommet Insertion	2	2	3
Esophagoscopy			5
Bronchoscopy		10	5
DL		5	
Thyroidectomy		5	
Mastoid Exploration		10	
FESS		20	

03rd Year/ 04th Year

Procedures	Under Supervision	Assist	Independently
Cortical Mastoidectomy	3	3	
Modified Radical Mastoidectomy	2	5	
FESS	5	20	
Tympanoplasty	10	2	
Thyroidectomy	10	1	
Tonsillectomy			15
Septoplasty			15
Intranasal Polypectomy			10
DL			10
Esophagoscopy			15
Bronchoscopy			15



ENTRY CRITERIA

ENTRY CRITERIA

Eligibility to apply for MS Otolaryngology (ENT)

- Candidate must possess MBBS or equivalent degree and one-year house job from PMC recognized Institutions.
- Permanent valid registration with PMC.
- Declared successful in MS Part-I for University programs.
- In case of foreign candidate, valid registration with Medical Council of their country of origin must be produced.

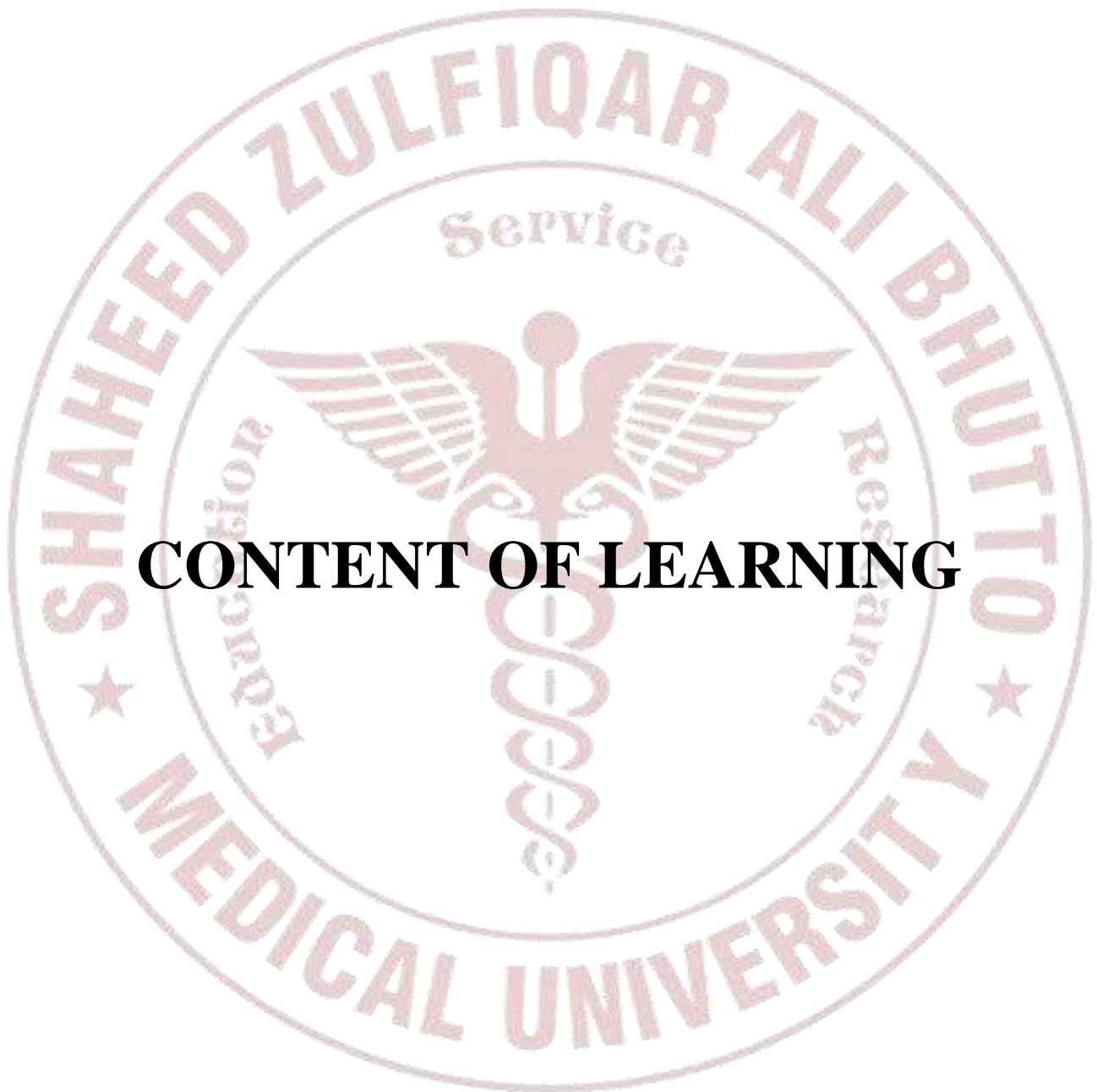
Required Documents

Attested photo copies of the following documents must be attached with the application form:

- Computerized National Identity Card (CNIC)
- Domicile certificate
- Matric/O Level, FSc/A Level, Certificates or equivalent
- MBBS degree with detail marks certificates of all professional
- MBBS Attempts certificates of all professional
- NEB pass certificate (for foreign graduates)
- House Job certificates
- PMC valid permanent registration certificate
- MS Part-I passing certificate
- Experience Certificates (if any)
- Migration Certificate (To be produced at the time of admission)

Admission Procedure

- Details of admission procedure is available on university website at <http://www.szabmu.edu.pk/admission/postgraduate-admission>



CONTENT OF LEARNING

CONTENT OF LEARNING

MS Otolaryngology

Basic Sciences:

Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology, and Pharmacology relevant to surgical practice appropriate for Otolaryngology

Anatomy

- Clinical and functional anatomy with pathological and operative relevance
- Surgical approaches to the ear, nose, larynx and head & neck structures
- Histology and embryology of ear, nose, larynx and head & neck structures
- Cell Biology: Cytoplasm – Cytoplasmic matrix, cell membrane, cell organelles, cytoskeleton, cell inclusions, cilia and flagella.
- Nucleus – nuclear envelope, nuclear matrix, DNA and other components of chromatin, protein synthesis, nucleolus, nuclear changes indicating cell death.
- Cell cycle, mitosis, meiosis, cell renewal.
- Cellular differentiation and proliferation.
- Tissues of Body: Light and electron microscopic details and structural basis of function, regeneration and degeneration. Confocal microscopy.
- The systems/organs of body – Cellular organization, light and electron microscopic features, structure function correlations, and cellular organization.

Embryology

- General Features of Human Development
- Features of mitotic and meiotic modes of cell division. Genetic consequences of meiotic division.
- Abnormal mitotic and meiotic divisions of clinical importance.
- Gametogenesis: origin of germ cells.
- Oogenesis: prenatal and postnatal development of ova.
- Spermatogenesis: proliferation and maturation of male germ cells. Abnormal gametes, their clinical significance.
- Ovulation, fertilization and the consequences of fertilization.

Early Embryonic Development:

- Cleavage, morula and blastocyst formation and implantation.
- Formation of the three primary germ layers.
- List of the derivatives of the respective germ layers.

Period of the Growing Fetus:

- Various stages and salient features of the fetus development

Extraembryonic Membranes:

- Development, functions and anomalies of yolk sac, amnion, chorion, allantois, umbilical cord and placenta.

Development of the External Body Form:

- Shaping of the head and neck. Common developmental anomalies associated.

The Branchial Apparatus:

- Development and fate of the bronchial grooves, arches and pouches. Their derivatives and anomalies.

Teratogenesis:

- Factors known to be involved in the development of congenital anomalies especially related to the otolaryngological system.
- Concept of critical periods.

Histology:

Structural and Functional Organization of the Tissues of Body

- Classification of tissues and identification of various tissues particularly those related to the musculoskeletal system, in routine histological preparations under the light microscope.

The Epithelial Tissue

- General structure, functions and classification of epithelia
- Their location in the body
- General characters of serous and mucous membranes
- General structural features of exocrine and endocrine glands

The Connective Tissue

- Cartilage
- Structure of bone marrow. Cell lines seen in haemopoiesis.
- Factors required for bone growth.

The Muscular Tissue

- Structural and functional differences between the smooth skeletal and cardiac types of muscle.
- Fine structure of skeletal and cardiac muscle fibers, and its relationship to the mechanism of contraction.
- Specialized conducting tissue of the heart.

The Neural Tissue

- The neuron, morphology of the perikaryon and its processes.
- Coverings of the axons in the peripheral nerves and the central nervous system.
- Types of neuroglia and their functions.
- Process of myelination in the peripheral nerves and the central nervous system.
- Axon terminals and synapses. Nerve fiber degeneration and regeneration.

Surface and Imaging Anatomy

Upper respiratory system including

- Ear (sense of hearing enters via cranial nerve)
- Nose.
- Paranasal Sinuses.
- Oral Cavity
- Pharynx.
- Larynx
- Salivary Glands
- Head and neck
- Blood supply, Nerve supply and the Lymphatic drainage of the ear, nose, Throat and trachea, larynx and accessory sinuses

- Anatomy of the Central Nervous System with particular reference to ear, nose and throat
- Gross Anatomy of neck and chest in relation to trachea and oesophagus
- Comparative study of Anatomy of the ear, nose and throat in relation to lower animals.

Physiology

- Physiology of ear, nose, throat and oesophagus
- Sound Transmission
- Functions of the nose
- Physiology of olfaction
- Physiology of hearing
- Middle ear impedance transformer mechanism
- Vestibular function in maintaining equilibrium
- Auditory pathway
- Physiology of swallowing
- Speech generation
- Endocrine glandular function, particularly thyroid, parathyroid and pituitary glands
- Shock and circulatory support
- Exocrine glands, particularly salivary glands
- Special senses, particularly hearing, balance and olfaction

Pharmacology

- The Evolution of Medical Drugs
- British Pharmacopia
- Introduction to Pharmacology
- Receptors
- Mechanisms of Drug Action
- Pharmacokinetics
- Pharmacokinetic Process
- Absorption
- Distribution
- Metabolism
- Desired Plasma Concentration

- Volume of Distribution
- Elimination
- Elimination rate constant and half life
- Creatinine Clearance
- Drug Effect
- Beneficial Responses
- Harmful Responses
- Allergic Responses
- Drug Dependence, Addiction, Abuse and Tolerance
- Drug Interactions
- Dialysis
- Drug use in pregnancy and in children
- Ototoxicity and medication

Pathology

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

Cell Injury and adaptation

- Reversible and Irreversible Injury
- Fatty change, Pathologic calcification
- Necrosis and Gangrene
- Cellular adaptation
- Atrophy, Hypertrophy,
- Hyperplasia, Metaplasia, Aplasia

Inflammation

- Acute inflammation
- Cellular components and chemical mediators of acute inflammation
- Exudates and transudate
- Sequelae of acute inflammation
- Chronic inflammation
- Etiological factors and pathogenesis
- Distinction between acute and chronic (duration) inflammation

- Histologic hallmarks
- Types and causes of chronic inflammation, non-granulomatous & granulomatous,

Haemodynamic disorders

- Etiology, pathogenesis, classification and morphological and clinical manifestations of Edema, Haemorrhage, Thrombosis, Embolism, Infarction & Hyperaemia
- Shock; classification etiology, and pathogenesis, manifestations.
- Compensatory mechanisms involved in shock
- Pathogenesis and possible consequences of thrombosis
- Difference between arterial and venous emboli

Neoplasia

- Dysplasia and Neoplasia
- Benign and malignant neoplasms
- Etiological factors for neoplasia
- Different modes of metastasis
- Tumor staging system and tumor grade

Immunity and Hypersensitivity

- Immunity
- Immune response
- Diagnostic procedures in a clinical Immunology laboratory
- Protective immunity to microbial diseases
- Tumour immunology
- Immunological tolerance, autoimmunity and autoimmune diseases.
- Transplantation immunology
- Hypersensitivity
- Immunodeficiency disorders
- Immunoprophylaxis & Immunotherapy

Related Microbiology

- Role of microbes in various otolaryngological disorders
- Infection source
- Nosocomial infections
- Bacterial growth and death

- Pathogenic bacteria
- Vegetative organisms
- Spores
- Important viruses
- Important parasites
- Surgically important microorganisms
- Sources of infection
- Asepsis and antisepsis
- Sterilization and disinfection
- Infection prevention
- Immunization
- Personnel protection from communicable diseases
- Use of investigation and procedures in laboratory
- Basics in allergy and immunology

Special Pathology

- Foreign body in Ear, Nose & Throat
- Otitis media
- Otitis externa
- Mastoiditis
- Rupture of tympanic membrane
- Meniere's disease
- Nasal allergy
- Nasal Polyp
- Epistaxis
- Sinusitis



- Hearing Loss
- Tonsillitis and peritonsillar abscess
- Pharyngitis
- Ludwig's Angina
- Hoarseness of voice
- Laryngotracheitis
- Laryngeal obstruction
- Diphtheria
- Indication of tracheostomy
- Carcinoma of Larynx
- Wax in ear, Haematoma auris, Furunculosis
- Indications for and interpretation of results of common biochemical and haematological tests
- Macroscopic and microscopic appearances of common or important diseases found in otolaryngology

MS Otolaryngology

Principles of General Surgery for Abridged Examination

- History of surgery
- Preparing a patient for surgery
- Principles of operative surgery: asepsis, sterilization and antiseptics
- Surgical infections and antibiotics
- Basic principles of anaesthesia and pain management
- Acute life support and critical care:
- Pathophysiology and management of shock
- Fluids and electrolyte balance/ acid base metabolism
- Haemostasis, blood transfusion
- Trauma: assessment of polytrauma, triage, basic and advanced trauma
- Accident and emergency surgery
- Wound healing and wound management
- Nutrition and metabolism
- Principles of burn management
- Principles of surgical oncology
- Principles of laparoscopy and endoscopy
- Organ transplantation

- Informed consent and medicolegal issues
- Molecular biology and genetics
- Operative procedures for common surgical manifestations e.g. cysts, sinuses, fistula, abscess, nodules, basic plastic and reconstructive surgery

Common surgical skill

Incision of skin and subcutaneous tissue:

- Langer's lines
- Healing mechanism
- Choice of instrument
- Safe practice

Closure of skin and subcutaneous tissue:

- Options for closure
- Suture and needle choice
- Safe practice

Knot tying:

- Choice of material
- Single handed
- Double handed
- Superficial
- Deep

Tissue retraction:

- Choice of instruments
- Placement of wound retractors
- Tissue forceps

Use of drains:

- Indications
- Types
- Insertion
- Fixation
- Management/removal

Incision of skin and subcutaneous tissue:

- Ability to use scalpel, diathermy and scissors

Closure of skin and subcutaneous tissue:



- Accurate and tension free apposition of wound edges

Haemostasis:

- Control of bleeding vessel (superficial)
- Diathermy
- Suture ligation
- Tie ligation
- Clip application
- Plan investigations
- Clinical decision making
- Case work up and evaluation; risk management

Pre-operative assessment and management:

- Cardiorespiratory physiology
- Diabetes mellitus
- Renal failure
- Pathophysiology of blood loss
- Pathophysiology of sepsis
- Risk factors for surgery
- Principles of day surgery
- Management of comorbidity

Intraoperative care:

- Safety in theatre
- Sharps safety
- Diathermy, laser use
- Infection risks
- Radiation use and risks
- Tourniquets
- Principles of local, regional and general anaesthesia

Post-operative care:

- Monitoring of postoperative patient
- Postoperative analgesia
- Fluid and electrolyte management
- Detection of impending organ failure

- Initial management of organ failure
- Complications specific to particular operation
- Critical care

Blood products:

- Components of blood
- Alternatives to use of blood products
- Management of the complications of blood product transfusion including children

Antibiotics:

- Common pathogens in surgical patients
- Antibiotic sensitivities
- Antibiotic side-effects
- Principles of prophylaxis and treatment

Safely assess the multiply injured patient:

- History and examination
- Investigation
- Resuscitation and early management
- Referral to appropriate surgical subspecialties

Technical Skills

- Central venous line insertion
- Chest drain insertion
- Bleeding diathesis & corrective measures, e.g. warming, packing
- Clotting mechanism; Effect of surgery and trauma on coagulation
- Tests for thrombophilia and other disorders of coagulation
- Methods of investigation for suspected thromboembolic disease
- Anticoagulation, heparin and warfarin
- Role of V/Q scanning, CT angiography and thrombolysis
- Place of pulmonary embolectomy
- Awareness of symptoms and signs associated with pulmonary embolism and DVT
- Role of duplex scanning, venography and d-dimer measurement
- Initiate and monitor treatment

Diagnosis and Management of Common Surgical Conditions:

- Abdominal pain
- Vomiting
- Trauma

- Urological conditions (Urinary retention)
- Constipation
- Head / neck swellings
- Abscess

In terms of general experience it is expected that trainees would have gained exposure to the following procedures and to be able to perform those marked (*) under direct supervision.

- Lymph node biopsy*
- Insertion of CV lines
- Excision of skin lesions*
- Incision and drainage of abscess*
- Insertion of pleural drain*
- Insertion of suprapubic catheter*

Specialty Component for Final Examination

Students should be familiar with typical clinical presentation, key physical findings, radiological findings and differential diagnosis, initial treatment, and referral indications for common otolaryngological diseases

Otology

- Examination of Ear.
- Aetiopathology of Inflammatory Conditions of External & Middle Ear
- Pathology of Cochlea.
- Pathology of Vestibular System.
- Diseases of External Ear.
- Ear Trauma.
- Plastic Surgery of the Ear.
- Acute Suppurative Otitis Media.
- Management of Acute Suppurative Otitis Media
- Chronic Suppurative Otitis Media.
- Management of Chronic Suppurative Otitis Media.
- Reconstruction of the Ear.
- Complication of Suppurative Otitis Media.
- Otalgia.

- Otosclerosis.
- Diseases of Temporal Bone.
- Sensorineural Hearing Loss.
- Sudden & Fluctuant Sensorineural Hearing Loss.
- Vertigo.
- Meniere's disease.
- Ototoxicity.
- Vestibular Schwannoma.
- Epithelial Tumours of External Auditory Meatus.
- Glomus & Other Tumours of the Ear.
- Disorders of Facial Nerve.
- Surgery of the Vestibular System.
- Cochlear Implants.
- Presbycusis.
- Implantable Hearing Devices.

Rhinology

- Examination of Nose.
- Conditions of the External Nose.
- Congenital Anomalies of the Nose.
- Evaluation of the Nasal Airway & Nasal Challenge.
- Abnormalities of Smell.
- Mechanism & Treatment of Allergic Rhinitis.
- Food Allergy & Intolerance.
- Infective Rhinitis & Sinusitis.
- Intrinsic Rhinitis.
- Nasal Polyps.
- The Nasal Septum.
- Surgical Management of Sinusitis.
- Complications of Sinusitis.
- Cerebrospinal Fluid Rhinorrhoea.
- The Upper Airways & their relation to the respiratory System.
- Fracture of Facial Skeleton.
- Rhinoplasty.

- Epistaxis.
- Snoring & Sleep Apnoea.
- Non-Healing Granulomas.
- Facial pain & Headache.
- Aspects of Dental Surgery for Otorhinolaryngology.
- Trans-Sphenoidal Hypophysectomy.
- The Orbit.
- Neoplasms of Nose & Paranasal sinuses.

Laryngology & Head, Neck

- Examination & endoscopy of the upper aerodigestive tract.
- Oral cavity.
- Acute & chronic infections of pharynx & tonsils.
- Acute & chronic laryngitis.
- Sleep apnoea.
- Adenoidal and tonsillar pathology
- Disorders of voice.
- Management of obstructed airway & tracheostomy.
- Trauma & stenosis of larynx.
- Neurological affections of larynx & pharynx.
- Pharyngeal pouches.
- Tumours of the larynx.
- Angiofibroma.
- Nasopharynx (the postnasal space).
- Tumours of oropharynx & lymphomas of the head & neck
- Benign diseases of neck.
- Malignant neck diseases;
- The thyroid & parathyroid gland.
- Non-neoplastic salivary gland diseases.
- Benign salivary gland tumours.
- Malignant salivary gland tumours.
- Tumours of infratemporal fossa & parapharyngeal space.
- Cysts, granulomas & tumours of the jaw, nose & sinuses.
- The esophagus in otolaryngology.
- Facial plastic surgery.

- Plastic & reconstructive surgery of the head & neck.
- Terminal Care of Patients with head & neck Cancer.

Audiology

- Acoustics
- Computers in Audiology.
- Epidemiology.
- Otological Symptoms & Emotional Disturbances.
- Clinical tests of Hearing & Balance.
- Pharmacological Treatment of Hearing & Balance Disorders.
- Legal & Ethical Matters.
- Prevention of Hearing & Balance Disorders.
- Hearing Overview.
- Causes of Hearing Disorders.
- Noise & the Ear.
- Diagnostic Audiometry.
- Audiological Rehabilitation.
- Hearing Aids.
- Cochlear Implants.
- Tactile Aids.
- Central Auditory Dysfunction
- Tinnitus
- Overview of Balance
- Causes of Balance Disorders.
- Diagnostic Testing of Vestibular System
- Rehabilitation of Balance Disorders.

Paediatric Otolaryngology

- Improving Paediatric Otolaryngological Consultation.
- Genetic Factors & Deafness.
- The Causes of Deafness.
- Testing Hearing in Children.
- Screening & Surveillance for Hearing Impairment in Preschool Children.
- Otitis Media with Effusion.
- Acute Suppurative Otitis Media in Children.
- Chronic Suppurative Otitis Media in Children.

- Surgery of Congenital Abnormalities of the External & Middle Ear.
- Management of Hearing Impaired Child.
- Cochlear Implantation in Children.
- Vestibular Disorders in Children.
- Speech & Language.
- Foreign Bodies in the Ear & Nose.
- Congenital Anomalies of the Nose.
- Craniofacial Anomalies.
- Nasal Obstruction & Rhinorrhoea in Infants & Children.
- Tonsils & Adenoids.
- Dental development, Orthodontics, Cleft lip & Cleft palate.
- Sleep Apnoea.
- Stertor & Stridor.
- Congenital Disorders of Larynx, Trachea & Bronchi.
- Stenosis of Larynx.
- Acute Laryngeal Infections.
- Foreign Bodies in Larynx & Trachea.
- Tracheostomy & Decannulation.
- Home care of Tracheostomised Child.
- Neonatal Pulmonary Disorders.
- Diseases of the Esophagus in Children.
- Branchial cleft Anomalies, Thyroglossal cysts & Fistulae.
- Tumours of the Head & Neck in Children.
- Salivary Glands Disorders in Children.
- The Drooling Child.
- Recurrent Respiratory Papillomatosis.
- Paediatric Anesthesia.

Emergencies in Otolaryngology-Head and Neck Surgery

- Airway Obstruction.
- Inspired or Ingested Foreign Bodies.
- Sore Throat or Difficulty Swallowing.
- Epistaxis.
- Ear Complaints.
- Head and Neck Infections.
- Laryngeal and Tracheal Trauma.
- Facial Trauma

Rehabilitation

- Speech rehabilitation following laryngectomy
- Rehabilitation following maxillectomy – obturator
- Management of hearing loss
- Hearing aids
- Bone anchored hearing aids
- Cochlear implants
- Radiotherapy, Brachytherapy, Chemotherapy, Palliative Care

Recent Advances:

- Advances in laser in ENT applications
- Ultrasonic scalpel
- Gamma Knife
- Computer assisted surgeries
- Intra -Arterial Local Chemotherapy
- Powered instruments



Common Otolaryngological Skills and Procedures

- On completion of the initial training in Part I, the trainees will be competent in all aspects of the basic, operative and non operative care of surgical patients
- During Part II training, they will understand the importance of Otolaryngological care and management with particular reference to common Otolaryngological presentations recognizing and preventing secondary. They will be capable of resuscitating, assessing and initiating the surgical management of patients deteriorating as a result of local and systemic complications. They will demonstrate sound judgment when seeking more senior support, prioritizing medical interventions and escalating the level of medical care.
 - Administration of antibiotics in the surgical patient
 - Use of blood and its products
 - The role/complications of diathermy
 - Pain relief in surgery
 - Thrombo-embolic
 - Prevention and management
 - Wound care and nosocomial infection
 - Suture techniques and materials
 - Initial assessment and management of airway problems
 - Initial management of foreign bodies in ENT
 - Initial epistaxis and its management
 - Initial management of facial fractures

Radiological Interpretations:

- Plain films of the head, neck, sinuses and chest.
- CT scans of the sinuses, petrous bone, neck, chest and brain
- MRI scans of the sinuses, brain, neck, chest, head
- Contrast radiology of swallowing, sialography
- Ultrasound of the neck

Audiology and vestibular testing

- Interpretation of report from an Audiologist

- Simple tests for hearing including a pure tone audiogram, loudness discomfort levels and a tympanogram
- Brain stem evoked response audiometry
- Otoacoustic emissions
- Cortical evoked audiometry
- Electronystagmograph
- Equitest
- Rotating chair test
- Familiarity with different types of hearing aids
- Technique of mould impression
- Clinical neurological examination
- Ophthalmoscopy
- Lumbar puncture
- Electromyograph
- Electroneuronograph
- Electroencephalograph

Otology

- Examination of the ear – Auriscope
- Examination under the microscope – de wax
- External meatus and mastoid cavity
- Suction clearance for otitis externa and insertion of wick
- Removal of simple foreign bodies
- Myringotomy and Grommet insertion
- Incision for mastoid surgery
- Clinical examination of hearing
- Clinical examination of vestibular function

Rhinology

- Examination of the nose and sinuses – anterior
- Rhinoscopy
- Examination of smell
- Rigid endoscopy
- Flexible nasendoscopy
- Examination of the post nasal space
- Suction under endoscopic control of surgical cavity
- Insertion and removal of nasal pack and or balloon for epistaxis

- Simple polypectomy
- Biopsy of the nose and nasopharynx
- Antral washout in the management of acute sinusitis
- Removal of simple foreign bodies
- Drainage of septal haematoma
- Reduction of fractured nose
- Submucous resection
- Reduction of turbinates

Laryngology

- Examination of the larynx – indirect
- Laryngoscopy
- Flexible laryngoscopy
- Direct laryngoscopy
- Biopsy of the larynx, pharynx and oral cavity (including tongue)
- Adenoidectomy and tonsillectomy
- Removal of simple foreign bodies from the oropharynx and hyper pharynx
- Incision/drainage of Quinsy

Neck

- Examination of the neck
- Emergency and elective tracheostomy
- Fine needle aspiration biopsy of a neck lump





COMPETENCIES

OTO-RHINO LARNGOLOGY

Routine Patient Care (Procedures) Third year		
Elicit a pertinent history		100
Communicate effectively with patients, families, and the health team		100
Perform a physical examination		100
Order appropriate investigations		100
Interpret the results of investigations		100
Assess fitness to undergo surgery		40
Decide and implement appropriate treatment		40
Postoperative management and monitoring		40
Maintain accurate and appropriate records		40
40 Presentation skills		40
Preoperative preparation for various ENT surgical procedures		40
40 Aseptic techniques		40
Positioning of patient for diagnostic and operative procedures		40
Procedures (Third Year)		
Use of common surgical instruments, suture materials and appliances and suture techniques		40
Use of operating Microscope (Ear Surgery)		65
Use of Flexible Endoscope like Nasopharyngoscopy		20
Use of Functional Endoscopic Sinus Surgery Instrument		20
Nasogastric intubation		20
Tracheostomy		12
Post-operative dressing		20
Anterior nasal packing		40

Posterior nasal packing		4
Nasal cautery		20
Sub-mucosal diathermy		8
Proof puncture / Antral lavage		16
Drainage of abscesses and boils		20
Surgical dressings		20
Syringing of ear Aural Toilet		40
Procedures Third year		
Turbinate surgery		20
Intranasal antrostomy		12
Endoscopic removal of foreign body under GA		12
Removal of visible foreign body from nose/ear/throat		12
Manipulation of nasal fractures		12
Nasal polypectomy		12
Turbinate surgery		12
Caldwell-sinus antrostomy		12
Direct laryngoscopy and biopsy		12
Cortical Mastoidectomy		12
Oesophagoscopy and biopsy		12
Adenoidectomy		20
Tonsillectomy		8
Ethmoidectomy		8
Mastoidectomy		8
Myringoplasty		8
EUM and myringotomy		8
Endoscopies under GA		8
Procedures Third Year		
Laryngectomy		4
Maxillectomy		-
Mandibulectomy		-

Regional or axial flap		-
Other radical head and neck procedures		-
Routine radiology for head and neck		40
CT scan and MRI interpretation		20
Contrast medium studies of larynx, oesophagus and bronchi		8
Maintenance of I / V Line		20
Endotracheal Intubation		8
Performs and Interpret s Audiograms and Tympanograms		20
Local Anaesthesia in ENT		20
Septal surgery		20
Rhinoplasty		8
Routine Procedures (4th Year)		
Elicit a pertinent history		100
Communicate effectively with patients, families, and the health team		100
Perform a physical examination		100
Order appropriate investigations		100
Interpret the results of investigations		100
Decide and implement appropriate treatment		40
Postoperative management and monitoring		40
Maintain accurate and appropriate records		40
Presentation skills		40
Preoperative preparation for various ENT surgical procedures		40
Aseptic techniques		40
Positioning of patient		40
Positioning of patient for diagnostic and operative procedures		40

Procedures Fourth Year		
Use of common surgical instruments, suture materials and appliances and suture		40
Use of operating Microscope (Ear Surgery)		80
Use of Flexible Endoscope like Nasopharyngoscopy		20
Use of Functional Endoscopic Sinus Surgery Instruments		20
Nasogastric intubation		20
Tracheostomy		12
Post-operative dressing		20
Anterior nasal packing		40
Posterior nasal packing		4
Nasal cautery		20
Sub-mucosal diathermy		8
Sub-mucosal diathermy		16
Drainage of abscesses and boils		20
Surgical dressings		20
Syringing of ear Aural Toilet		40
Procedures Fourth Year		
Removal of visible foreign body from nose/ear/throat		20
Endoscopic removal of foreign body under GA		12
Manipulation of nasal fractures		12
Nasal polypectomy		12
Turbinate surgery		12
Intranasal antrostomy		12
Caldwell-sinus antrostomy		12
Direct laryngoscopy and biopsy		12
Oesophagoscopy and biopsy		12
Cortical Mastoidectomy		12
Adenoidectomy		12

Tonsillectomy		20
Ethmoidectomy		8
Mastoidectomy		8
Myringoplasty		8
EUM and myringotomy		8
Endoscopies under GA		8
Laryngectomy		4
Maxillectomy		-
Mandibulectomy		-
Regional or axial flap		-
Other radical head and neck procedures		-
Routine radiology for head and neck		40
CT scan and MRI interpretation		20
Contrast medium studies of larynx, esophagus, and bronchi		8
Maintenance of I / V Line		20
Endotracheal Intubation		8
Performs and Interpret s Audiograms and Tympanograms		20
Local Anaesthesia in ENT		20
Septal surger		20
Rhinoplast		8

Log Book -Record of Clinical Cases

Longitudinal evaluation (Logbook, Assignments, Assessments)

Throughout the length of the course the performance of the candidate will be recorded on the Log Book. Completed and duly certified logbook will form a part of the application for appearing in the final examination. The Log Book will reflect the performance of the candidate in the following parameters:

- a. Entries in log book should be on regular basis, and signed by the supervisor, certifying the work.
- b. Record of competence of technical skills.
- c. Record of the assignments.
- d. Record of affective and interpersonal behaviors.
- e. Record of Journal clubs, conferences, lectures and workshops attended.

Table: Specimen from Log book

DATE	HOSPITAL No.	NAME, AGE, SEX	DIAGNOSIS	PROCEDURE PERFORMED	PERFORMANCE OF TRAINEE*	SIGNED BY IMMEDIATE SUPERVISOR

*Key 1) Observer Status 3) Performed under supervision
 2) Assistant Status 4) Performed independently

Mandatory Workshops

During training candidate will attend the following mandatory workshops arranged by the University:

I. Communication skills

The aim is acquisition of the students with an art of communication for an effective doctor patient relationship, where the art of history taking and the skill of advice and instruction communication is pivotal. This will also enhance the interpersonal communication at the hospital amongst early colleges and those in various departments of the hospital setting. Furthermore, the appearance of our students in clinical meetings, workshops, conferences and seminars will be exceptionally didactic both as participants and as presenters. Furthermore, a better skill to communicate will empower the students to present better in their assessments for the very program, especially, OSPE, long case, short case and thesis defense.

II. Research methodology, Biostatistics & Medical writing

As Research and recent advances are part and parcel of evidence-based practice, the university intends to endow in the students to raise intrigued healthcare professionals who intend to develop ease, both for the patient and the system by means of their queries and research. An elaborated session will provide a guideline as the first basic step towards thesis writing. Biostatistics will be introduced and statistics software introduction and basics workshop is carried out. Furthermore, the university provides the students with available Research and Biostatistics department as a continuum of guidance and help in their research works. Research Work is encouraged and a well-established ethical board and review committees for check of quality and virtues at all levels.

III. Computer and internet skills

Since literature review is the essence of research, an effective student must vest in him the recent updates in regards to the available search engines and gadgets, the software and platforms which lead to better understanding of topics. The aim of the workshop is to empower the students to better inquire for their research questions and to be able to avail the maximum out of the broad horizon of information available.

IV. Basic Life Support

Basic knowledge and skills for emergency situations in an unresponsive patient as per recent updates and protocols are delivered to the students, ensuring an up to the mark health care professional for the society at large. The workshops are well equipped and test the candidate both in knowledge and hands on.

V. Surgical skills

This workshop is the pivotal for the emerging surgeons and provides knowledge together with hands on practice. The students see, learn, perform and continue to implement well learnt basic practices over the course of the clinical training.

Candidate will be Certified of the above-mentioned workshops by the University.



ROTATIONS

In the four years' clinical course in the department of Otolaryngology, mandatory rotation as an elective of six (06) months may be selected subject to the availability of slot, discretion of the supervisor, and willingness of the PG Trainee. Rotation is carried out in the allied specialties and aids for better understanding of management strategies for ailments presenting to the subspecialties. Following rotations are offered

In first 24 months of training:

- General surgery- 2 months
- Ophthalmology- 2 months
- Neuro Surgery - 2 months

Rotations will begin from the beginning of a month for the prescribed time period.

The student will be assessed and certified by the Supervisor for each rotation Annexure.



Thesis

One of the training requirements for the Degree is to undertake a research and write a Thesis on a topic related to the field of specialization. Firstly, the student shall prepare a synopsis under guidance of his supervisor. The synopsis should be in accordance with the guidelines to Synopsis written recommended by the University. Synopsis of the research must be approved from the Ethical Review Board (ERB) and the Advanced study & research board (AS&RB) before starting the research work. During process of Research the resident has to submit study data/result of project on quarterly basis to the Department of Medical Education (DME) and Biostatistician. Once the research is commenced, an elaborative document of the guided structure, the Thesis, is then submitted for approval. The thesis must be submitted for approval during the beginning of fourth year of training program. After review by three external examiners, approval of thesis from AS&RB, the Resident can appear in the final examination. The Thesis is then to be subjected to a seminar of thesis defence. A candidate shall be eligible for defence of thesis examination whether he/she shall be declared pass or fail in the theory examination. Defence of thesis examination comprising of a presentation and question/Answer session with a panel of examination. A score of 70% or above will fulfill the passing criteria.

The guideline for synopsis and thesis writing is available on University website at

<http://www.szabmu.edu.pk/content/downloads/guidelines-for-synopsis-writing.pdf>

<http://www.szabmu.edu.pk/content/downloads/guidelines-for-thesis-writing.pdf>

The thesis submitted by all post graduate residents shall comply with the instructions and guidelines for Thesis writing issued by the University. It shall form a distinct contribution to knowledge and afford evidence of originality, shown by the discovery of new facts, by the exercise of independent critical judgment and / or by the invention of new methods of investigation. It shall not include research work for which a degree has already been conferred in this or any other university/college. In the wake of fundamental improvements being introduced in the system of Higher Education in Pakistan, the credit, respect, recognition of research and scholarly publications, career development and financial gains are now linked with such original works accomplished without replicating the efforts of other researchers. Students are guided to work in light of HEC Plagiarism policy and put original effort to light.

I. Thesis Evaluation

There shall be a standing list of External Examiners for each discipline consisting of persons of eminence in the respective field of research. The list shall be suggested from time to time by the Board of Studies of the Department/ Institute, Board of Faculty concerned and approved by the Research Board. The External Examiners will be requested to critically examine the thesis for its suitability for acceptance.

The candidate shall in the first instance submit four unbound copies of his/her complete thesis along with an application on prescribed form for the evaluation of his/ her thesis, duly forwarded

by his/her supervisor and the Head of Otolaryngology Department. The Vice Chancellor shall appoint three External Examiners from the approved list of External Examiners.

The reports of the examiners shall be placed before the Research Board for consideration. If two of the three Examiners find that the thesis is wholly inadequate it may be rejected by the Research Board.

If any of the examiners suggests modification/ revision of the thesis, the candidate shall be required to resubmit a revised version of the thesis duly certified by the supervisor, within one year (in case of Major Correction). The revised version of the thesis shall be approved by the same examiners (s) who suggested modification/ revision of the thesis (in case of Major Correction).

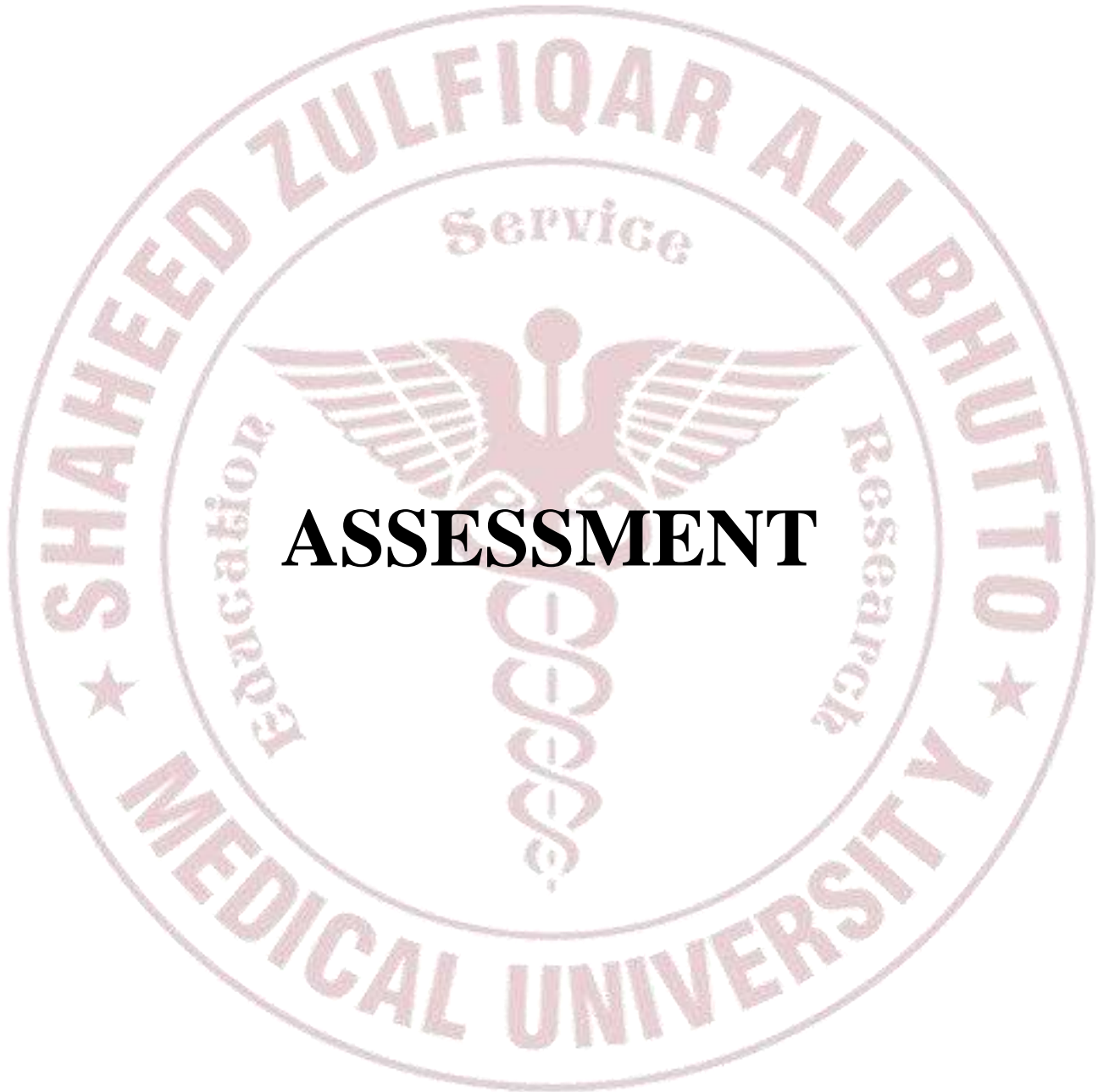
If any examiner finds the thesis adequate but suggests minor modification/ revision, this may be incorporated without referring again to the examiners. However, supervisor will recommend the correction.

The candidate will submit the research thesis in the final year of training, six months before completion of the training.

II. Thesis Evaluation Criteria for AS & RB

In pursuance of recommendations of Academic Council, decisions were taken about thesis evaluation of MS Otolaryngology thesis. Three (03) copies of thesis will be sent to three (03) external examiners for evaluation (28th February for Aug/Sep exam & 31st August for Mar/Apr Exam). In consideration of thesis evaluation reports, the Board's decision for thesis evaluation is as follows:

- If three examiners have accepted thesis with minor correction in present/accepted form thesis should be sent to the Advanced Studies & Research Boards (AS & RB) for further necessary action.
- In case two external examiners accepted thesis as minor in present/accepted form and third examiner reject the thesis, all thesis report will be rejected, and student must rewrite thesis.
- In case of two minor and one major corrections student will resubmit the thesis after three months.
- Time required for Thesis evaluation is within one year.



ASSESSMENT

Assessment of trainees will cover the cognitive, psychomotor and affective domains. It will take two forms:

- Formative Assessment
- Summative Assessment

Formative Assessment

It is the continuous assessment of progress and competence. It will be conducted through workplace-based assessment throughout the training. Assessment will be undertaken by a range of assessors and will cover a range of procedures appropriate to the stage of training. Formative assessment will include:

- Directly observed practical skills (DOPS)
- Case based discussion (CbD)
- Mini clinical examination exercises (Mini-CEX)
- Multiple source feedback (MSF)

Residents will be evaluated by Supervisor quarterly throughout the Residency according to the syllabus/curriculum and report will be submitted to the Registrar office. A specified template form is used to submit the report (Annexure).

Summative Assessment

Summative assessment will be held twice:

1. Mid Term Assessment (MTA) Examination (At the end of 2nd year)
2. Final/Exit Examination (At the end of Final Year)

The level of performance required for passing the exam will depend on the knowledge and skills necessary for acceptable performance and will not be adjusted to regulate the number or proportion of persons passing the examination. The pass point will be determined by careful analysis and judgment of acceptable performance.

STANDARD ASSESSMENT PROTOCOLS / FORMAT OF EXAMINATIONS

Mid Term Assessment (MTA)

The Mid Term Assessment (MTA) examination is mandatory eligibility requirement for all Postgraduate Final examinations. Candidates are required to have passed MS Part-I, complete two years training in Otolaryngology, get approval of their Synopsis from AS&RB and take the MTA Examination. In case of failure in the MTA examination, the trainees are permitted to continue their training but must pass the MTA examination prior to appear in the final examination.

Format of Examination

MTA Examination consists of the following components:

ASSESSMENT		
Written	Paper:100 One Best MCQs (100 Marks) Part-A: 50% MCQs from General Principles Part-B: 50% MCQs from Specialty Oriented	Pass Marks 60% Aggregate and Not Less than 55% in any Part (A Or B)
Assessment of Clinical & Technical Skills (ACTS/OSCE)	100 Marks 8-12 Stations	Pass Marks 60%
Total Marks		200

Format of Mid Term Assessment (MTA)

1. Multiple Choice Questions (MCQs)

The MTA comprises of two parts; A and B. Each MCQ carries 2 marks. There is no negative marking. MCQs are choose the best one type. Time available is minutes for each paper with a gap of minutes in between both A and B papers.

- Paper A comprises of 50 MCQs from Surgery in General.
- Paper B comprises of 50 MCQs from Allied specialties.

2. Assessment of Clinical & Technical Skills (ACTS/OSCE)

- **Eligibility**

A candidate shall be eligible for the ACTS/OSCE after passing MTA examination. He can avail three consecutive clinical examinations after passing the exam.

A candidate availing/missed all the three consecutive chances of clinical examination after passing an MTA examination, he shall appear again in the theory examination.

- **Format**

ACTS/ OSCE will comprise of 12-18 stations of 5 to 8 minutes each with a change time of one minute for the candidate to move from one station to the other. The stations would have an examiner, a patient or both. Structured clinical tasks will be set at each station. The examiners using a global rating scale will assess the performance of each candidate. On stations where no examiner is present the candidates will have to submit written responses to short answer questions on a response sheet. There will be two types of stations: static and interactive. On

static stations the candidate will be presented with patient data, a clinical problem or a research study and will be asked to give written responses to questions asked. In the interactive stations the candidate will have to perform a procedure, for example, taking history, performing clinical examination, counseling, assembling an instrument etc. One examiner will be present at each interactive station and will either rate the performance of the candidate or ask questions testing reasoning and problem-solving skills.

Final Postgraduate Examination

Final Postgraduate examination of MS Otolaryngology is comprising of following three (03) main components:

1. Theory Examination
2. OSCE & Clinical Examination
3. Defence of Thesis

1. Theory Examination

- **Format & Passing Criteria**

Paper	Type	Marks	Duration	Passing Criteria
Paper – I	One Best Type MCQ Paper	100	03 Hours	75 % in Aggregate and Not Less than 70% in any Paper
Paper – II	One Best Type MCQ Paper	100	03 Hours	

2. OSCE & Clinical Examinations

- **Eligibility**

A candidate shall be eligible for the OSCE & Clinical Examination after passing theory examination. He can avail three consecutive clinical examinations after passing a final theory examination.

A candidate availing/missed all the three consecutive chances of clinical examination after passing a theory examination, he shall appear again in the theory examination

- **Format & Passing Criteria**

OSCE & Clinical Examination is comprising of three components

- i. OSCE
- ii. Long Case
- iii. Short Case

i. Format of OSCE

Observed Structured Clinical Examination (OSCE) will comprise of 12-18 stations of 5 to 8 minutes each with a change time of one minute for the candidate to move from one station to the other. The stations would have an examiner, a patient or both. Structured clinical tasks will be set at each station. The examiners using a global rating scale will assess the performance of each candidate. On stations where no examiner is present the candidates will have to submit written responses to short answer questions on a response sheet. There will be two types of stations: static and interactive. On static stations the candidate will be presented with patient data, a clinical problem or a research study and will be asked to give written responses to questions asked. In the interactive stations the candidate will have to perform a procedure, for example, taking history, performing clinical examination, counseling, assembling an instrument etc. One examiner will be present at each interactive station and will either rate the performance of the candidate or ask questions testing reasoning and problem-solving skills.

ii. Format of long case

For assessment of the holistic approach of the candidate regarding patient management, each candidate will be allotted one long case and allowed 30 minutes for history taking and clinical examination. Candidates should take a careful history from the patient (or relative) and after a thorough physical examination identify the problems which the patient presents with. During the period a pair of examiners will observe the candidate. In this section the candidates will be assessed on the following areas:

- **Interviewing skills**

- Introduces one self. Listens patiently and is polite with the patient.
- Is able to extract relevant information.

- **Clinical examination skills**

- Takes informed consent
- Uses correct clinical methods systematically (including appropriate exposure and re-draping).

- **Case presentation/ discussion**

- Presents skillfully
- Gives correct findings.
- Gives logical interpretations of findings and discusses differential diagnosis.
- Enumerates and justifies relevant investigations.
- Outlines and justifies treatment plan (including rehabilitation).
- Discusses prevention and prognosis.
- Has knowledge of recent advances relevant to the case.
- During case discussion the candidate may ask the examiners for laboratory investigations which shall be provided, if available. Even if they are not available and are relevant, candidates will receive credit for the suggestion.

iii. Format of short cases

Candidates will be examined in at least four short cases for a total of 40 minutes jointly by a pair of examiners. Candidates will be given a specific task to perform on patients, one case at a time. During this part of the examination, the candidate will be assessed in:

- **Clinical examination skills**
 - Takes informed consent.
 - Uses correct clinical methods including appropriate exposure and re-draping.
 - Examines systematically.

- **Discussion**
 - Gives correct findings.
 - Gives logical interpretations of findings.
 - Justifies diagnosis/es.
 - As the time for this section is short, the answers given by the candidates should be precise, succinct and relevant to the patient under discussion.

Component	Protocol Description	Marks	Duration	Passing Criteria
OSCE	8-12 Stations 60% Interactive 40% Static	100	5 to 6 minutes per stations	60% in Aggregate and Not Less than 55% in any Paper
Long Case	One (01) Case	100	50 Minutes	
Short Case	Four (04) Case	100	40 Minutes (10 Minutes for each case)	

If a candidate securing 60% or more marks in OSCE component He/She shall be exempted from this component in the next clinical examination until & unless he reappears in the theory examination.

3. Defence of Thesis

- **Eligibility**

A candidate shall be eligible for defence of thesis examination whether he/she shall be declared pass or fail in the theory examination

- **Format of Examination**

Defence of thesis examination comprising of a presentation and question/Answer session with a panel of examination.

- **Passing criteria**

A score of 70% or above marks is required to pass.

If a candidate shall be declared pass in the Defence of thesis examination, he/she shall be exempted from this component forever. Provisional Certificate, Transcript and Degree will be awarded only after passing all the components of the final MS Otolaryngology examination.





LEARNING RESOURCES

LEARNING RESOURCES

List of Essential Readings

Books:

- Johnson. A case Approach to Open Structure Rhinoplasty with DVD-ROM
- Dhingra. Diseases of ENT
- Lore. An Atlas of Head and Neck Surgery. 4th ed.
- Glasscock. Glasscock-Shambaugh Surgery of the Ear. 5th ed.
- Logan. McMinn's Color Atlas of Head and Neck Anatomy. 3rd ed.
- Prescott. Oxford Hand Book of ENT
- Miller. The Otolaryngologic Clinics of North America February
- Kerr. Scott-Brown's Otolaryngology. 6th ed.;1997
- Watkinson. Stell and Maran's Head and Neck Surgery. 4th ed.
- Bailey. Head and Neck Surgery –Otolaryngology. 3rd ed.
- Masud. Text Book of ENT.
- Wormald. Endoscopic Sinus Surgery
- Water. Otolaryngology Basic Science and Review.
- Grewal. Atlas of Surgery of the Facial Nerve.
- Hazarika. Clinical and Operative Methods in ENT and Head and Neck Surgery
- Maniglia. Surgical reconstruction of the Face and Anterior Skull Base.
- Sheen J. H. Assymetrical Alar Base: Secodary Rhinoplasty Video.
- Salvi-Hende. Auditory System Plasticityand Regeneration
- Ballenger. Ballenger's Otolaryngology: Head and Neck
- Rubin J. S. Diagnosis and Treatment of Voice Disorders. 3rd Ed.
- Yousem M. Head and Neck Surgery: Case Review Series. 2nd ed. (PB)
- CD-ROM – Laryngoscope 1995-96 CD-ROM
- Aperilla
- The British Journal of Otolaryngology
- Journal of Academy of Otolaryngology and Head and Neck Surgery
- Otolaryngology Clinics of North America
- American journal of Otolaryngology
-
- Scott Brown Text Book of Otolaryngology
- Fathalla M. F. and Fathalla M. M. F. A Practical Guide

- for Health Researcher. Cairo: World Health Organization; 2004.
- Rana M. H., Ali S. Mustafa M. A Handbook of Behavioural Sciences for Medical and Dental



ANNEXURE

Supervisor Evaluation Form

SUPERVISOR'S INTERNAL ASSESMENT/EVALUATION PROFORMA FOR MS

PGR Name: _____ Session: _____ Specialty: _____

University Registration No: _____

Period: From _____ To _____

1.	Generic Competencies		
	(Please score from 1 - 100. 75% shall be the pass marks)		Component Score
		Patient Care	20
		Medical Knowledge and Research	20
	i	Practice and System Based Learning • Journal Clubs	04
		• Audit Projects	04
		• Medical Error Investigation and Root Cause Analysis	04
		• Morbidity / Mortality / Review meetings	04
		• Awareness of Health Care Facilities	04
	iv.	Communication Skills	10
		• Informed Consent	10
		• End of life decisions	
	v.	Professionalism	04
		• Punctuality and time keeping	04
		• Patient doctor relationship	04
	• Relationship with colleagues	04	
	• Awareness of ethical issues	04	
	• Honesty and integrity	04	
2.	Specialty specific competencies		
	Please score from 1 - 100. 75% shall be the pass marks		Score achieved
	Operative Skills / Procedural Skills		
3.	Multisource Feedback Evaluation (Please score from 1 - 100. 75% shall be the pass marks)		

4.	Candidates Training Portfolio (Please score from 1 - 100.75% shall be the pass marks)		
	(Please score from 1 -100. 75% shall be the pass marks)	Component Score	Score achieved
	I. Log book of operations and procedures	25	
	II. Record of participation and presentation in academic activities	25	
	III. Record of publications	25	
IV. Record of results of assessments and examinations	25		

Total marks obtained _____ Signature of Supervisor _____

Name & Stamp _____

