

**UNMRP**  
**UNIVERSITY NATIONAL MEDICAL RESIDENCY**  
**PROGRAM PAKISTAN**

**UNIFIED CURRICULA REGISTRY**  
**MEDICAL UNIVERSITIES OF**  
**PAKISTAN**

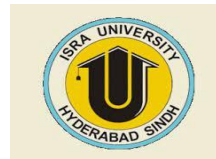
**CURRICULUM**



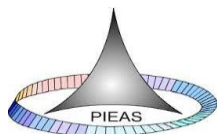
**MASTER OF SURGERY**  
**MS**  
**PLASTIC SURGERY**

5 years, residential, clinical , Stipend based, full time,

# UNIVERSITY NATIONAL MEDICAL RESIDENCY PROGRAM PAKISTAN



SUPERIOR UNIVERSITY



United Nations Academic Network (UNAN)  
The UNFSCO via the NFOMAP Bangkok

**Note: All universities are included the international WHO directory discovered on the website of WHO and are duly recognized by the United Nations Academic Network (UNAN) and the UNESCO via the NEQMAP Bangkok**

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## **STATUTES**

### *Nomenclature of the Proposed Course*

The name of degree program shall be MS Plastic Surgery. This name is wellrecognized and established for the last many decades worldwide.

### *Course Title:*

MS Plastic Surgery

### *Duration of Course*

The duration of MS Thoracic Surgery course shall be five (5) years with structured training in a recognized department under the guidance of an approved supervisor.

After admission in MS Plastic Surgery Program the resident will spend first 6 Months in the relevant Department of Plastic Surgery as **Induction period** during which resident will get orientation about the chosen discipline and will also participate in the **mandatory workshops** (Appendix E). The research project shall be designed and the **synopsis** be prepared during this period

On completion of Induction period the resident shall start training to learn Basic Principles of General Surgery for 18 Months.

During this period the Research Synopsis shall be got approved by the Medical university.

At the end of 2<sup>nd</sup> Calendar year the candidate shall take up Intermediate Examination.

During 3<sup>rd</sup>, 4<sup>th</sup> & 5<sup>th</sup> years, of the Program, there shall be two components of the training.

- 1) Clinical Training in Plastic Surgery
- 2) Research and Thesis writing

The candidate will undergo clinical training in the discipline to achieve the educational objectives (knowledge & Skills) along with rotation in the relevant fields during the 4<sup>th</sup> &

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5<sup>th</sup> years of the program. There shall be two rotations of 3 months each in any 2 of the following disciplines Ophthalmology, Otolaryngology, Oral and faciomaxillary Surgery. The clinical training shall be competency based. There shall generic and specialty specific competencies and shall be assessed by continuous Internal Assessment. (Appendix F&G).

The Research & Thesis Component shall be completed over the five years duration of the course. The Candidate will spend total time equivalent to one calendar on research during the training. Research can be done as one block or it can be done as regular periodic rotation over five years as long as total research time is equivalent to one calendar year.

### *Admission Criteria*

Applications for admission to MS Training Programs will be invited through advertisement in print and electronic media mentioning closing date of applications and Passed Entry Test conducted by JCAT Joint Commission Admission Testing Examination.

Eligibility: The applicant on the last date of submission of applications for admission must possess the:

- ❖ Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical & Dental Council.
- ❖ Certificate of one year's House Job experience in institutions recognized by Pakistan Medical & Dental Council is essential at the time of interview. The applicant is required to submit House Certificate from the concerned Medical

Superintendent that the House Job shall be completed before the Interview.

- ❖ Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

*Registration And Enrollment*

- ❖ As per policy of Pakistan Medical & Dental Council the number of PG Trainees/ Students per supervisor shall be maximum 05 per annum for all PG programs including minor programs (if any).
- ❖ Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- ❖ The University will approve supervisors for MS courses.
- ❖ Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with University 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)

**B. Adequate Space**

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab and clinical pathology lab etc.

**C. Library**

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

- ❖ Accreditation of Thoracic Surgery training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum.
- ❖ Program should be presented to the University along with a plan for implementation of curriculum for training of residents.
- ❖ Programs should have documentation of residents training activities and evaluation

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on monthly basis.

- ❖ To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary.

## **AIMS AND OBJECTIVES OF THE COURSE**

### **AIM**

The aim of five years MS program in Plastic Surgery 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 Thoracic Surgery 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 thoracic 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 thoracic system and differentiate those amenable to surgical treatment
- Effectively manage the care of patients with thoracic 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



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- 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 Thoracic Surgery
- Facilitate the learning of others.

### 7. Appreciate ethical issues associated with Thoracic Surgery:

- 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 Thoracic Surgery
- Adhering with current regulations concerning workplace harassment

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- 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, Plastic Surgery 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 Thoracic Surgery at secondary and tertiary care level with proficiency in the Basic and applied clinical sciences, Basic Thoracic surgical care, Thoracic intensive care, Emergency medicine and Complementary surgical disciplines.

### **Medical Knowledge - Goals**

- ❖ Understand the types of medical and surgical problems addressed on the plastic surgery service during your specific rotation. These problems could include:
  - Congenital defects of the head and neck, including clefts of the lip and palate, and craniofacial surgery
  - Neoplasms of the head and neck, including the oropharynx, and endoscopy
  - Craniomaxillofacial trauma, including fractures
  - Aesthetic (cosmetic) surgery of the head and neck, trunk, and extremities
  - Plastic surgery of the breast
  - Surgery of the hand/upper extremities
  - Plastic surgery of the lower extremities
  - Plastic surgery of congenital and acquired defects of the trunk and genitalia
  - Burn management, acute and reconstructive
  - Microsurgical techniques applicable to plastic surgery
  - Reconstruction by tissue transfer, including flaps and grafts
  - Surgery of benign and malignant lesions of the skin and soft tissues
- ❖ Understand conditions that will complicate surgery.
- ❖ Understand the appropriate techniques of tissue handling and skin closure.

### **Medical Knowledge - Objectives**

- ❖ Demonstrate comprehension of pertinent medical issues through presentation of patients to team on morning rounds.
- ❖ Describe symptoms of healthy flaps and replants
- ❖ Describe symptoms of unhealthy flaps and replants
- ❖ Identify medications which may interfere with blood clotting
- ❖ Identify alternatives to blood clotting medications

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- ❖ Name laboratory tests useful in the evaluation and management of blood clotting
- ❖ Demonstrate proficiency in appropriate skin closure techniques in operating room
- ❖ Demonstrate proficiency in appropriate tissue handling techniques in Operating room
- ❖ Demonstrate proficiency in appropriate suturing techniques in operating room
- ❖ Name laboratory tests useful in the evaluation and management of wound care

### Patient Care - Goals

- ❖ Learn to deliver responsive, timely care for all inpatients.
- ❖ Understand the appropriate post-operative management of free flaps and replants.
- ❖ Understand the appropriate post-operative management of the patient with a changing course.
- ❖ Learn to synthesize all available information in order to make appropriate clinical decisions.

### Patient Care - Objectives

- ❖ Demonstrate appropriate tissue handling technique
- ❖ Demonstrate appropriate suturing technique
- ❖ Demonstrate appropriate skin closure technique
- ❖ Demonstrate the ability to make a diagnosis and formulate a surgical plan.
- ❖ Demonstrate the ability to perform suture removal, dressing changes, and wound care.
- ❖ Demonstrate the ability to document all patient encounters with legible chart notes.
- ❖ Demonstrate the ability to accurately check all flaps or replants for any change in color, temperature, capillary refill or bleeding
- ❖ Obtain help from seniors to achieve rapid return to operating room for exploration for any patients who may exhibit change in color, temperature, capillary refill or bleeding of flaps or replants
- ❖ Justify selection of laboratory tests and diagnostic tests for each patient on the service
- ❖ Demonstrate the ability to dictate thorough discharge summaries on all inpatients.

### Practice - Based Learning - Goals

- ❖ Develop an attitude of responsibility for the patients on the ward, and in so doing develop the skill of self-assessment with the goal of continuous improvement in practice management style.
- ❖ Understand the importance of critically reading and discussing medical literature pertinent to patients on the service.

**Practice - Based Learning - Objectives**

- ❖ Critically discuss performance with respect to care of patients and progress made during rotation with Chief of Service or designee at mid-rotation meeting.
- ❖ At least three times during the rotation, choose a pertinent issue pertaining to a patient on the service, critically evaluate an article from the literature which addresses the problem, and present conclusions to the entire team on rounds.

**Systems-Based Practice - Goals**

- ❖ Understand the importance of supporting medical and ancillary services in the complete and efficient care of the patient.
- ❖ Develop a cost-effective attitude toward patient management.
- ❖ Develop an appreciation for the patients' interests and convenience in care management plans.

**Systems-Based Practice - Objectives**

- ❖ Facilitate discharge planning by daily communication with inpatient care manager.
- ❖ Describe indications for medical consultation in the pre- and post-operative periods, particularly with respect to these specialties:
  - Cardiology
  - Gastroenterology
  - Pain Management service
  - Interventional Radiology
  - Hematology
  - Infectious Disease
- ❖ Facilitate daily communication with consulting physicians
- ❖ As pertinent for each individual patient, facilitate daily communication with ancillary services, such as:
  - Physical Therapy
  - Occupational Therapy
  - Speech
  - Enterostomal Therapy
  - Nutrition
  - Mental Health
  - Social Services

**Interpersonal and Communication Skills - Goals**

- ❖ Develop the ability to respectfully and clearly communicate with other healthcare professionals.
- ❖ Learn to present patients to senior residents, fellows, and attending in an organized and precise manner.
- ❖ Learn how to function effectively as a member of a team.
- ❖ Learn to communicate effectively with patients and their families.

**Interpersonal and Communication Skills - Objectives**

- ❖ Consistently answer nursing questions and pages clearly and effectively.
- ❖ Present patients on inpatient rounds in an organized and concise manner.
- ❖ Present clinic patients to the attending efficiently to facilitate clinic flow.
- ❖ Gain experience in explaining results of evaluations and recommendations for treatment to patients and their families (practice patient education skills).

**Professionalism - Goals**

- ❖ Demonstrate respect and compassion for patients and professional staff on the wards, in the clinics, and in the operating room.
- ❖ Develop open-mindedness regarding alternative treatments.
- ❖ Understand need for continual self-assessment and improvement.
- ❖ Develop an attitude of responsibility for patient care requests by senior residents.

**Professionalism - Objectives**

- ❖ Use appropriate speech and tone of voice when speaking to patients, families, and other healthcare professionals.
- ❖ Allow others the chance to speak, and listen attentively when being spoken to.
- ❖ Demonstrate a conscientious approach to patient care by minimizing delay of care and minimizing passage of incomplete tasks to fellow residents.

**Skills and Procedures**

- ❖ Skin and Soft Tissue Coverage (skin grafts, flaps)
- ❖ Microvascular Reconstruction (Extremity, Breast, Head & Neck etc)
- ❖ Skin Cancers (excisional and reparative surgery involved in treatment)
- ❖ Head and Neck Cancers (tumours of the face, neck and intraoral region)
- ❖ Burns /Sequelae (management of burns and their complications)
- ❖ Hand Surgery and Limb Trauma (management of acute hand injuries, elective and reconstructive surgery, hand rehabilitation, all aspects of amputation)
- ❖ Breast Surgery including Breast Reconstruction
- ❖ Cleft Lip / Palate and Cranio-facial Surgery (including orthodontics, dental and speech therapy)
- ❖ Facial Trauma (soft tissue injuries, maxillofacial traumas including mandibles)
- ❖ Aesthetic Surgery
- ❖ Laser Surgery: Laser License obtained
- ❖ Other congenital Corrections (Ear, Hand, Urogenital etc)
- ❖ Tissue expanders
- ❖ Trunk reconstruction

**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.

**REGULATIONS**

*Scheme of the Course*

A summary of five years course in MS Plastic Surgery is presented as under:

Course Structure	Components	Examination
At the End of 2nd year MS Plastic Surgery Programme	<ul style="list-style-type: none"> <li>Principles of General Surgery</li> <li>Relevant Basic Science (Anatomy, Physiology, Pharmacology &amp; Pathology)</li> </ul>	<p><b><u>Intermediate Examination</u></b> at the end of 2<sup>nd</sup> Year of M.S. Plastic Surgery Program</p> <p>Written MCQs = 300 Marks                      Clinical, TOACS/OSCE &amp; ORAL = 200 Marks                      Total = 500 Marks</p>
At the end of 5 <sup>th</sup> year MS Plastic Surgery Programme	<p><b><u>Clinical component</u></b></p> <p>Training in Plastic Surgery with rotations in the relevant fields.</p> <p><b><u>Research component</u></b></p> <p>Research work / Thesis writing must be completed and thesis be submitted atleast 6 months before the end of final year of the program.</p>	<p><b><u>Final Examination</u></b> at the end of 5<sup>th</sup> year of M.S. Plastic Surgery Program.</p> <p>Written = 500 Marks                      Clinical, TOACS/OSCE &amp; ORAL = 500 Marks                      Contribution of CIS = 100 Marks                      Thesis Evaluation = 400 Marks                      Total = 1500 Marks</p> <p>Thesis evaluation and defense at the end of 5<sup>th</sup> year of the program.</p>

*Intermediate Examination*

All candidates admitted in MS Plastic Surgery courses shall appear in Intermediate examination at the end of second calendar year.

**Eligibility Criteria:**

The candidates appearing in Intermediate Examination of the M.S. Plastic Surgery Program are required:

- ❖ To have submitted certificate of completion of mandatory workshops.
- ❖ To have submitted certificate / certificates of completion of first two years of training from the supervisor / supervisors of rotations.
- ❖ To have submitted CIS assessment proforma from his/her own supervisor on 03 monthly basis and also from his/her supervisors during rotation, achieving a cumulative score of **75%**.
- ❖ To have submitted certificate of approval of synopsis or undertaking / affidavit that if synopsis not approved with 30 days of submission of application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training program.
- ❖ To have submitted evidence of payment of examination fee.

**Intermediate Examination Schedule and Fee**

- ❖ Intermediate Examination at completion of two years training, will be held twice a year.
- ❖ There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
- ❖ Examination fee will be determined periodically by the University.
- ❖ The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- ❖ The Controller of Examinations will issue Roll Number Slips on receipt of



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prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

All candidates admitted in MS Plastic Surgery courses shall appear in Intermediate examination at the end of second calendar year.

Written Examination	= 300 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks
<b>Total</b>	<b>= 500 Marks</b>

### Written:

MCQs 100 (2 marks each MCQ)

SEQs 10 (10 Marks each SEQ)

**Total = 300 Marks**

### Components of Theory Paper

Principles of General Surgery	= 70 MCQs	7 SEQs
Specialty specific	= 10 MCQs	1 SEQs
Basic Sciences	= 20 MCQs	2 SEQs
• Anatomy	= 6 MCQs	1 SEQs
• Pharmacology	= 2 MCQs	-----
• Pathology	= 6 MCQs	1 SEQ
• Physiology	= 6 MCQs	-----

**Clinical, TOACS/OSCE & ORAL**

Four Short Cases	= 100 Marks
One Long Case	= 50 Marks
Clinical, TOACS/OSCE & ORAL=	50 Marks

**Total = 200 Marks**

**Declaration of Results**

The Candidate will have to score 60% marks in written, Clinical, Toacs/ OSCE & oral and practical component and a cumulative score of 60% to be declared successful in the Intermediate Examination.

A maximum total of four consecutive attempts (availed or unavailed) 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 be removed from the training program, and the seat would fall vacant, stipend/ scholarship if any would be stopped.

**Final Examination**  
**M.S. Plastic Surgery**

**At the end of 5<sup>th</sup> Calendar year of the Program Eligibility**

**Criteria:**

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

- ❖ To have submitted the result of passing Intermediate Examination.
- ❖ To have submitted the certificate of completion of training, issued by the Supervisor which will be mandatory.
- ❖ To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.
- ❖ To have got the thesis accepted and will then be eligible to appear in Final Examination.
- ❖ To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.
- ❖ To have submitted evidence of submission of examination fee.

**Final Examination Schedule and Fee**

- ❖ Final examination will be held twice a year.
- ❖ The candidates have to satisfy eligibility criteria before permission is granted to take the examination.
- ❖ Examination fee will be determined and varied at periodic intervals by the University.
- ❖ The examination fee once deposited cannot be refunded / carried over to the

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next examination under any circumstances.

- ❖ 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.

All candidates admitted in MS Plastic Surgery course shall appear in Final (clinical) examination at the end of structured training program (end of 5th calendar year), and having passed the Intermediate examinations.

Written Part	= 500 Marks
Clinical, TOACS/OSCE & ORAL	= 500 Marks
Contribution Internal Assessment = 100 Marks Thesis Examination	= 400 Marks
<b>Total</b>	<b>= 1500 Marks</b>

### Written Papers:

Paper 1	= 100 MCQs	5 SEQs
Paper 2	= 100 MCQs	5 SEQs

### Clinical, TOACS/OSCE & ORAL:

4 Short Cases	= 200 Marks
1 Long Case	= 100 Marks
Toacs/OSCE & Oral	= 200 Marks
<b>Total</b>	<b>= 500 Marks</b>

**Declaration of Result**

For the declaration of result

- ❖ The candidate must get his/her Thesis accepted.
- ❖ The candidate must have passed the final written examination with 75 % marks and the clinical & oral examination securing 70% marks. The cumulative passing score from the written and clinical/ oral examination shall be 70 %. Cumulative score of 70 % marks to be calculated by adding up secured marks of each component of the examination i.e written and clinical/ oral and then calculating its percentage.
- ❖ The MS degree shall be awarded after acceptance of thesis and success in the final examination.
- ❖ On completion of stipulated training period, irrespective of the result (pass or fail) the training slot of the candidate shall be declared vacant.

***Submission / Evaluation of Synopsis***

- ❖ The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on university website.
- ❖ 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.
- ❖ Synopsis of research project shall be submitted by the end of the 2<sup>nd</sup> year of MS 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 of Thesis**

- ❖ Thesis shall be submitted by the candidate duly recommended by the Supervisor.
- ❖ The minimum duration between approval of synopsis and submission of thesis shall be one year.
- ❖ The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
- ❖ The research thesis will be submitted along with the fee prescribed by the University.

### **Thesis Examination**

- ❖ The candidate will submit his/her thesis at least 06 months prior to completion of training.
- ❖ The Thesis along with a certificate of approval from the supervisory will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within 05 working days of receiving.
- ❖ The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the final panel within 05 working days to the Controller of Examinations for processing and assessment. In case of any delay the Controller of Examinations would bring the case personally to the Vice Chancellor.
- ❖ The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.
- ❖ The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.
- ❖ The thesis will be evaluated by the examiners within a period of 06 weeks.
- ❖ In case the examiners fail to complete the task within 06 weeks with 02 fortnightly

reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.

- ❖ In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant clause of the University regulations.
- ❖ There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in consultation with the concerned Deans, appoint minimum of three, one internal and two external examiners.
- ❖ The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.
- ❖ The thesis will be considered accepted, if the cumulative score of all the examiners is 60%.
- ❖ The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

#### ***Award of MS Thoracic Surgery Degree***

After successful completion of the structured courses of MS Plastic Surgery and qualifying Intermediate & Final examinations (Written Clinical, TOACS/OSCE & ORAL and Thesis) the degree with title MS Plastic Surgery shall be awarded.

## CONTENT OUTLINE

### MS. Plastic Surgery For Intermediate Examination

#### **Basic Sciences:**

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

#### **1. Anatomy**

- ❖ Detailed Anatomy of the organ systems of body, their blood supply, nerve supply, lymphatic drainage and important gross relations to other organs as appropriate for surgical operations
- ❖ Developmental Anatomy and associated common congenital abnormalities
- ❖ Features of Surface, Imaging and Applied Anatomy within each organ system
- ❖ Relate knowledge to assessment of clinical situation or progress of disease condition

#### **CARDIOVASCULAR:**

- ❖ Embryogenesis of heart and major vessels, and formation of the lymphatic system.
- ❖ Common anatomical variations of heart chambers, valves and major Vessels.
- ❖ Surgical anatomy of heart and major arteries + veins in thorax, neck, abdomen and groins

#### **RESPIRATORY:**

- ❖ Embryogenesis of trachea and bronchial tree



- ❖ Lung development
- ❖ Development and defects of diaphragm
- ❖ Common anatomical variations of respiratory tree and lungs to include vascular anomalies
- ❖ Surgical anatomy of pleura, lung and trachea and bronchial tree

#### **GASTROINTESTINAL TRACT AND ABDOMINAL WALL:**

- ❖ Embryogenesis of the GIT to include formation of the solid organs, anorectum, and abdominal wall
- ❖ Common anatomical variations in the formation of the GIT and abdominal wall
- ❖ Surgical anatomy of the GIT and its relations to other systems

#### **Renal:**

- ❖ Embryogenesis of the upper and lower renal tract to include male and female genital development
- ❖ Common anatomical variations of the renal tract and genitalia
- ❖ Surgical anatomy of the renal tract, and associated genital structures to include relationships to other systems.

#### **NEUROLOGICAL:**

- ❖ Embryogenesis of the brain and spinal cord, and of the supporting structures (skull, vertebral column)
- ❖ Common anatomical variations of the brain and spinal cord
- ❖ Surgical anatomy of the brain, spinal cord and major somatic nerves (to include relationships to other systems)

#### **MUSCULO SKELETAL:**

- ❖ Embryogenesis of the skeleton and muscle development
- ❖ Common anatomical variations of skeleton
- ❖ Surgical anatomy of skeleton where relevant to other systems

#### **ENDOCRINE:**

Development, defects and surgical anatomy of endocrine organs

## **2. Physiology**

- ❖ Cellular organization, structure function correlations and physiological alterations in the organ systems of body

- ❖ Relate knowledge to assessment of clinical situation or progress of disease condition

**FLUID BALANCE:**

- ❖ Basic requirements of fluid and electrolytes at different ages
- ❖ Mechanisms of homeostasis
- ❖ Influence of disease states
  - renal
  - cardiac
  - gastrointestinal
  - trauma
- ❖ Mechanisms of homeostasis
- ❖ Abnormalities encountered in disease

**ACID-BASE BALANCE:**

- ❖ Basic requirements of fluid and electrolytes at different ages
- ❖ Mechanisms of homeostasis
- ❖ Influence of disease states

**OXYGEN TRANSPORT:**

- ❖ Airway function in health and disease
- ❖ Alveolar function and gas exchange
- ❖ Effect of disease
  - R.D.S.
  - Infection
  - Barotrauma
  - Prematurity
- ❖ Effect of foetal circulation

**GASTROINTESTINAL TRACT:**

- ❖ Motility of different regions of gut
- ❖ Secretion and absorption
- ❖ Function of sphincter regions
  - Gastroesophageal junction
  - Pylorus
  - Ileocaecal region
  - Anorectum
- ❖ Defaecation and continence

**HEPATOBIILIARY FUNCTION AND PANCREATIC FUNCTION:**

- ❖ Metabolic and synthetic hepatic function
- ❖ Bile production and transport
- ❖ Exocrine pancreatic function
- ❖ Effect of disease on normal function

**RENAL TRACT:**

- ❖ Renal mechanisms for maintenance of homeostasis
- ❖ Effect of disease
- ❖ Bladder function and continence
- ❖ Transitional renal physiology in neonate and young child

**GROWTH AND METABOLISM:**

- ❖ Nutritional requirements at different ages
- ❖ Endocrine factors influencing growth
  - thyroid
  - pituitary
  - pancreatic
  - adrenal
  - gonadal
- ❖ Effect of disease states including
  - chronic disease
  - trauma
  - response to operation
- ❖ Influence and use of parenteral and enteral feeding

**AUTONOMIC NERVOUS SYSTEM:**

- ❖ Differing effects of sympathetic and parasympathetic innervation
- ❖ Effects on differing physiological processes
  - ❖ Membrane biochemistry and signal transduction
  - ❖ Gene expression and the synthesis of proteins
  - ❖ Bioenergetics; fuel oxidation and the generation of ATP
  - ❖ Carbohydrate metabolism
  - ❖ Lipid metabolism
  - ❖ Nitrogen metabolism
  - ❖ Enzymes and biologic catalysis
- ❖ Tissue metabolism

- ❖ Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer

### 3. 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

### 4. Pathology

Pathological alterations at cellular and structural level

- ❖ Inflammation
- ❖ Wound healing
- ❖ Cellular injury
- ❖ Vascular disorders
- ❖ Disorders of growth, differentiation and morphogenesis
- ❖ Tumours
- ❖ Surgical immunology
- ❖ Surgical haematology

Microbiology

- ❖ Surgically important microorganisms
- ❖ Sources of infection
- ❖ Asepsis and antisepsis
- ❖ Sterilization
- ❖ Antibiotics
- ❖ High risk Patient management

**MS Plastic Surgery**

**Course Contents Principles of General Surgery For  
Intermediate 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
- ❖ Principles of basic diagnostic and interventional radiography

- ❖ Principles and interpretation of conventional and advanced radiographic procedures

### Common Surgical Skills

#### **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**

**1. Non trauma Surgery**

- ❖ Endoscopy and Laparotomy
- ❖ Drainage of ano-rectal sepsis
- ❖ Urethral catheterisation
- ❖ Suprapubic cystostomy
- ❖ Exploration of scrotum
- ❖ Reduction of paraphimosis
- ❖ Embolectomy
- ❖ Fasciotomy
- ❖ Organ retrieval for transplantation

**2. Trauma Surgery**

- ❖ Tracheostomy
- ❖ Emergency thoracotomy

**3. Surgical sepsis**

- ❖ Drainage of superficial abscesses
- ❖ Laparotomy for sepsis
- ❖ Chest drainage for sepsis
- ❖ Thoracotomy for sepsis
- ❖ Burr holes and craniotomy for intracranial abscess

**4. Critical care**

- ❖ Tracheal Intubation
- ❖ Tracheostomy
- ❖ Surgical airway
- ❖ Cardio-pulmonary resuscitation
- ❖ Chest drain insertion
- ❖ Central venous line insertion
- ❖ Insertion of peritoneal dialysis catheter
- ❖ Primary vascular access for haemodialysis
- ❖ A detailed knowledge of the methods and results of invasive monitoring will not be required



## 5. Gastrointestinal surgery

- ❖ Diagnostic upper GI endoscopy
- ❖ Oesophageal dilatation
- ❖ Oesophageal stenting
- ❖ Laser recanalization
- ❖ Mucosal resection
- ❖ Staging laparoscopy & laparoscopic ultrasound scanning
- ❖ Operations for morbid obesity
- ❖ Endoscopic control of upper GI bleeding
  - Variceal banding/sclerotherapy
  - Biliary bypass
  - Gastrectomy
  - Proctoscopy/rigid sigmoidoscopy
  - Flexible sigmoidoscopy & colonoscopy, diagnostic and therapeutic
  - Procedures for fistula in ano
  - Rectal injuries

## 6. Hepatopancreaticobiliary Surgery

- ❖ ERCP and endoscopic sphincterotomy
- ❖ Biliary reconstruction
- ❖ Porto-systemic shunt

## 7. Surgery of the skin & integument

- ❖ Excision of skin lesions
- ❖ Excision of skin tumours
- ❖ Split and full thickness skin grafting
- ❖ Node biopsy
- ❖ Block dissection of axilla and groin
- ❖ Surgery for soft tissue tumours including sarcomas

## 8. Endocrine surgery / neck surgery

- ❖ Thyroid lobectomy
- ❖ Thyroglossal cystectomy
- ❖ Submandibular salivary gland excision

## 9. Breast surgery

- ❖ Treatment of breast abscess
- ❖ Fine needle aspiration cytology
- ❖ Needle localisation biopsy
- ❖ Trucut biopsy
- ❖ Mammary duct fistula
- ❖ Excision of breast lump
- ❖ Mastectomy
- ❖ Reconstruction
- ❖ Myocutaneous flaps
- ❖ Tissue expanders
- ❖ Complications and re-operation
- ❖ Breast reduction

#### **10. Hernias**

- ❖ Surgery for all abdominal herniae, using open and laparoscopic techniques
- ❖ Repair of children's' herniae

#### **11. Genitourinary Surgery**

- ❖ Dialysis and renal transplant
- ❖ Suprapubic catheter insertion
- ❖ Urethral catheterization
- ❖ Suprapubic cystostomy
- ❖ Pyeloplasty
- ❖ Complex hypospadias repair
- ❖ Nephrectomy
- ❖ Reimplantation of ureters

#### **12. Vascular surgery**

- ❖ Vascular suture/anastomosis
- ❖ Approach to/control of infra-renal aortic, iliac and femoral arteries
- ❖ Control of venous bleeding
- ❖ Balloon thrombo-embolectomy
- ❖ Amputations of the lower limb
- ❖ Fasciotomy
- ❖ Primary operation for varicose veins
- ❖ Abdominal aortic aneurysm repair, elective and ruptured
- ❖ Femoro-popliteal bypass
- ❖ Femoro-femoral bypass

**13. Thoracic Surgery**

- ❖ Repair pectus excavatum
- ❖ Thoracotomy
- ❖ Foreign body retrieval
- ❖ Competence in performing appropriate Mediastinal exploration
- ❖ Thoracic incisions

**14. Others**

- ❖ Skin and skeletal traction
- ❖ Open fracture debridement
- ❖ External fixation and Nerve repair
- ❖ Flexor and extensor tendon repair
- ❖ Surgical approaches to the joints and arthrotomy
- ❖ Spinal injury
- ❖ Emergency management of closed and open head injury
- ❖ Insertion and management of chest drains
- ❖ Thoracotomy and post operative management

**MS Plastic Surgery**  
**Course Contents for Final Examination**

**I. Basic Science**

- ❖ Embryology and development of human tissues
- ❖ Genetics and congenital abnormalities
- ❖ Mechanism of healing of tissues, factors affecting the healing
- ❖ Infection and its management
- ❖ General principles of Surgery
- ❖ The suture materials and suture techniques
- ❖ Clinical examination of various systems and clinical photography
- ❖ General anesthesia pre and post operative care for general anesthesia
- ❖ Local, regional and other nerve blocks
- ❖ Hypotensive and hypothermic anesthesia
- ❖ Management of benign and malignant lesions
- ❖ Wound healing, wound care, dressings and splints
- ❖ Fluid and electrolyte balance, acid base balance
- ❖ Shock and pulmonary failure, blood transfusions, ventilatory support and critical care
- ❖ Assessment of trauma, vascular emergencies embolism

**II. General Topics**

- ❖ History of Plastic Surgery
- ❖ Scope of Plastic Surgery
- ❖ Tissue distortion, tissue loss and its management
- ❖ Tissue culture, Transplantation biology and its applications
- ❖ Plastic Surgery instruments and equipments
- ❖ Maintenance of medical records, informed consent

- ❖ Applications of computer and related programs
- ❖ Social psychological, ethical and medico legal aspects communicationskills
- ❖ Implants, orthotics and prosthesis and applied to Plastic Surgery
- ❖ Tissue expansion and tissue distraction
- ❖ Management of Leprosy, leprosy deformities and leprosy reconstructivesurgery
- ❖ Endoscopic Plastic Surgery
- ❖ Advances, recent advances and current trends in Plastic Surgery
- ❖ Principles of surgical audit, understanding journal and review articles, text books and reference books, critical assesment of articles
- ❖ Research methodology and biostatistics
- ❖ Arteriovenous malformations, varicose veins, chronic venous insufficiency
- ❖ Meningomyelocele, encephalocele, spinal fusion defects, ventral defects, anorectal anomalies

### **III. Principal aspects of Plastic Surgery**

#### **Skin**

- ❖ Anatomy and functions of skin
- ❖ Diseases and other conditions affecting skin
- ❖ Skin grafts, its take and behavior
- ❖ Scars, unstable scars and scar contracture
- ❖ Hypertrophic scars and Keloids
- ❖ Flaps, anatomy and physiology, classification and applications
- ❖ Pedicled skin flaps and tube pedicle

#### **Head and Neck**

- ❖ Embryology, anatomy, growth and development of face and facial skeleton
- ❖ Structure and development of teeth
- ❖ Temporomandibular joint and its dysfunction
- ❖ Fractures of facial skeleton, management, sequel and subsequent surgery

## UNIVERSITY NATIONAL MEDICAL RESIDENCY PROGRAM PAKISTAN

- ❖ Reconstruction of ear, eyelid, lip, nose, cheek and soft tissues of face
- ❖ Congenital deformities of face and syndromes
- ❖ Cleft lip and palate, embryogenesis, management, orthodontics, velopharyngeal incompetences and speech therapy
- ❖ Craniofacial abnormalities, clefts, syndromes, microsomia, synostosis and hypertelorism Ptosis of eyelids
- ❖ Facial Paralysis
- ❖ Orthognathic surgery
- ❖ Surgery of neck associated with congenital and acquired deformities
- ❖ Rhinoplasty - corrective, aesthetic and reconstructive
- ❖ Benign and malignant lesions and tumors of head and neck, tumor biology, management including chemotherapy, adjuvant therapy and radiotherapy
- ❖ Reconstruction of mandible, maxilla and other bony defects
- ❖ Prosthetic rehabilitation
- ❖ Reconstruction of upper aerodigestive system

### Thorax

- ❖ Congenital and acquired defects of thorax and abdomen and its reconstruction
- ❖ Decubitus ulcers and its management
- ❖ Breast, anatomy, physiology, growth, development hormone influence, abnormalities, diseases, surgery and reconstruction, Gynecomastia
- ❖ Reconstruction of full thickness defects of thorax and abdomen

### Lower extremity

- ❖ Anatomy and biomechanics of locomotor system
- ❖ Functional anatomy of foot
- ❖ Congenital and acquired deformities of lower extremity
- ❖ Management of tissue defects following trauma

- ❖ Lymphoedema

### **Genitourinary**

- ❖ Embryology and anatomy of the male and female genitourinary system and genitalia, undescended testis
- ❖ Hypospadias, epispadias and ectopia vesicae, urinary diversion
- ❖ Reconstruction of external genitalia
- ❖ Vaginoplasty
- ❖ Intersex
- ❖ Infertility, vasectomy, tuboplasty, reconstruction

### **Hand**

- ❖ Embryology and anatomy of hand and upper extremity
- ❖ Clinical examination of hand and general principles of hand surgery
- ❖ Acute hand injuries
- ❖ Tendon injuries
- ❖ Nerve injuries
- ❖ Brachial plexus injuries
- ❖ Fractures and dislocations of hand
- ❖ Injuries and disorders of nail
- ❖ Electro diagnostic tests
- ❖ Ischemic conditions and vasospastic disorders
- 11. Nerve compression syndromes
- ❖ Surgery of spastic and tetraplegic hand
- ❖ Infections and diseases of hand and its management
- 14. Congenital abnormalities of hand and its management
- 15. Tendon transfers
- ❖ Lymphoedema
- ❖ Benign and malignant tumors of hand
- ❖ Rehabilitation of hand, physiotherapy, occupation therapy, splintage and prosthesis
- ❖ Rheumatoid arthritis

- ❖ Vascular malformations, tumors  
Reconstruction of thumb
- ❖ Reconstruction of mutilated hand
- ❖ Innervated flaps

**Micro-surgery**

- ❖ Principles of micro-surgery, micro vascular surgery and its applications
- ❖ Replantations and revascularization surgery
- ❖ Microvascular tissue transfer

**Burns**

- ❖ Thermal, Electrical, Chemical, Radiation, Burns
- ❖ Burns shock, Pathophysiology, treatment, wound care, nutrition, sequel
- ❖ Post burn contractures, deformities and its management
- ❖ Tangential excision, skin cover, allograft, homograft, xenograft and its application in burns
- ❖ Planning for burns care in disaster
- ❖ Organization of Burns care unit
- ❖ Rehabilitation following burns, psychological and social impact

**Aesthetic Surgery**

- ❖ Chemical peeling, dermabrasion, laser treatment
- ❖ Blepharoplasty
- ❖ Surgery of ageing face
- ❖ Body contouring, liposuction, abdominoplasty, hernioplasty
- ❖ Reduction and augmentation mammoplasty
- ❖ Hair transplant
- ❖ Orthognathic aesthetic surgery



**Paediatric Plastic Surgery**

- ❖ General principles of cleft lip and palate management
- ❖ General principles of craniofacial surgery
- ❖ General principles of hypospadias management
- ❖ General principles of congenital hand surgery
- ❖ Prominent ears

**Thesis Component**  
(Fifth year of MS Plastic Surgery Program) RESEARCH/ THESIS

**WRITING**

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 5th year of training or it can be stretched over five years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

**Research Experience**

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the surgical literature.

Residents should be advised and supervised by qualified staff members in the conduct of research.

**Clinical Research**

Each resident will participate in at least one clinical research study to become familiar with:

- ❖ Research design
- ❖ Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
- ❖ Data collection and data analysis
- ❖ Research ethics and honesty
- ❖ Peer review process

This usually is done during the consultation and outpatient clinic rotations.

**Case Studies or Literature Reviews**

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice.

## Laboratory Research

### *Bench Research*

Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions.

### *Research involving animals*

Each resident participating in research involving animals is required to:

- ❖ Become familiar with the pertinent Rules and Regulations of the University i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching"
- ❖ Read the "Guide for the Care and Use of Laboratory Animals"
- ❖ View the videotape of the symposium on Humane Animal Care

## **METHODS OF INSTRUCTION/COURSE CONDUCTION**

As a policy, active participation of students at all levels will be encouraged. Following teaching modalities will be employed:

- ❖ Lectures
- ❖ Seminar Presentation and Journal Club Presentations
- ❖ Group Discussions
- ❖ Grand Rounds
- ❖ Clinico-pathological Conferences
- ❖ SEQ as assignments on the content areas
- ❖ Skill teaching in ICU, Operation theatres, emergency and wardsettings
- ❖ Attend genetic clinics and rounds for at least one month.
- ❖ Self study, assignments and use of internet
- ❖ Bedside teaching rounds in ward
- ❖ OPD & Follow up clinics
- ❖ Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

### **1. Clinical Case Conference**

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Surgeon on the Consultation Service, will prepare and present the case(s) and review the relevant literature.

### **2. Monthly Student Meetings**

Each affiliated medical college approved to conduct training for MS Thoracic Surgery will provide a room for student meetings/discussions such as:

- a. Journal Club Meeting
- b. Core Curriculum Meetings

**c. Skill Development**

***a. Journal Club Meeting***

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

***b. Core Curriculum Meetings***

All the core topics of Thoracic Surgery should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

***c. Skill Development***

Two hours twice a month should be assigned for learning and practicing clinical skills.

**List of skills to be learnt during these sessions is as follows:**

- ❖ Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline
- ❖ Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director.
- ❖ Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.
- ❖ Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems,

and allocation of limited resources.

- ❖ Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures
- ❖ Residents should have instruction and experience with patient counseling skills and community education.
- ❖ This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
- ❖ Residents should have experience in the performance of Thoracic Surgery related clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards
- ❖ Each resident will manage at least the following essential Thoracic surgical cases and observe and participate in each of the following procedures, preferably done on patients under supervision initially and then independently.

### **3. Annual Grand Meeting**

Once a year all residents enrolled for MS Thoracic Surgery should be invited to the annual meeting University

One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making.

The research work done by residents and their literary work may be displayed.

In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MS examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed, the indications for the procedure, any complications and the interpretation of

the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

**Proposed Format of Log Book is as follows:**

Candidate's Name: \_\_\_\_\_

Roll No. \_\_\_\_\_

The above mentioned procedures in the curriculum, shall be entered in the log book as per format:

**Procedures Performed**

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure Performed	Supervisor's Signature
1					
2					
3					
4					

**Emergencies Handled**

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure/ Management	Supervisor's Signature
1					
2					
3					
4					

Case Presented

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Case Presented	Supervisor's Signature
1				
2				
3				
4				

Seminar/Journal Club Presentation

Sr.#	Date	Topic	Supervisor's signature
1			
2			
3			
4			

Evaluation Record

(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the fellow.

Sr.#	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor's Signature
1				
2				
3				
4				

**EVALUATION & ASSESSMENT STRATEGIES**

Assessment

It will consist of action and professional growth oriented *student-centered integrated assessment* with an additional component of *informal internal assessment, formative assessment* and measurement-based *summative*



*assessment.*

### **Student-Centered Integrated Assessment**

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to 'own' the evaluation and to use it as a basis for self-improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action-oriented.

In the proposed curriculum, it will be based on:

- ❖ Self Assessment by the student
- ❖ Peer Assessment
- ❖ Informal Internal Assessment by the Faculty

#### ***Self Assessment by the Student***

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

#### ***Peer Assessment***

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

#### ***Informal Internal Assessment by the Faculty***

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

- ❖ Punctuality
- ❖ Ward work
- ❖ Monthly assessment (written tests to indicate particular areas of weaknesses)
- ❖ Participation in interactive sessions

#### **Formative Assessment**

Will help to improve the existing instructional methods and the curriculum in use

***Feedback to the faculty by the students:***

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

**Summative Assessment**

It will be carried out at the end of the program to empirically evaluate cognitive, psychomotor and affective domains in order to award diplomas for successful completion of courses.

**Intermediate Examination MS Plastic Surgery**

**Total Marks: 500**

All candidates admitted in MS Plastic Surgery course shall appear in Intermediate examination at the end of second calendar year.

Written Examination	= 300 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks
Total	= 500 Marks

**Written:**

MCQs 100 (2 marks each MCQ)	
SEQs 10 (10 Marks each SEQ)	
<b>Total</b>	<b>= 300 Marks</b>

**Components of Theory Paper**

Principles of General Surgery	= 70 MCQs	7 SEQs
Specialty specific	= 10 MCQs	1 SEQs

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Basic Sciences	= 20 MCQs	2 SEQs
• Anatomy	= 6 MCQs	1 SEQs
• Pharmacology	= 2 MCQs	-----
• Pathology	= 6 MCQs	1 SEQ
• Physiology	= 6 MCQs	-----

### Clinical, TOACS/OSCE & ORAL

Four Short Cases	= 100 Marks
One Long Case	= 50
Marks TOACS/OSCE & ORAL	= 50
Marks	

**Total = 200 Marks**

### **Final Examination MS Plastic Surgery Total Marks: 1500**

All candidates admitted in MS Plastic Surgery course shall appear in Final examination at the end of structured training program (end of 5th calendar year) and after clearing Intermediate examination.

There shall be two written papers of 250 marks each, Clinical, TOACS/OSCE & ORAL of 500 marks, Internal assessment of 100 marks and thesis examination of 400 marks.

#### Topics included in paper 1

- ❖ Micro-surgery (15 MCQs)
- ❖ General Plastic Surgery (25 MCQs)
- ❖ Head and Neck and Thorax (30 MCQs)
- ❖ Upper and Lower Extremities (including Hands) (30 MCQs)

#### Topics included in paper 2

- ❖ Genitourinary Surgery (15 MCQs)
- ❖ Paediatric Plastic Surgery (25 MCQs)
- ❖ Skin (30 MCQs)
- ❖ Burns and Aesthetic Surgery (30 MCQs)

#### Components of Final Clinical Examination

##### Theory

Paper I	<b><u>250 Marks</u></b>	<b>3 Hours</b>
5 SEQs	50 Marks	

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100 MCQs	200 Marks	
<b>Paper II</b>	<b><u>250 Marks</u></b>	<b>3 Hours</b>
5 SEQs	50 Marks	
100 MCQs	200 Marks	

The candidates, who pass in theory papers, will be eligible to appear in the Clinical, TOACS/OSCE & ORAL.

**Clinical, TOACS/OSCE & ORAL** **500 Marks**

Four short cases	200 Marks
One long case:	100 Marks
Clinical, TOACS/OSCE & ORAL	200 Marks

**Continuous Internal Assessment** **100 Marks**

**Final MS Plastic Surgery Thesis Examination**  
**Total Marks: 400**

All candidates admitted in MS Plastic Surgery course shall appear in Final Thesis Examination at the end of 5<sup>th</sup> year of the MS program. The examination shall include thesis evaluation with defense.

- d. The acquisition of research skill will be assessed as per regulations governing thesis evaluation and its acceptance.

iii. **Practice and System Based Learning**

- a. This competency will be learnt from journal clubs, review of literature, policies and guidelines, audit projects, medical error investigation, root cause analysis and awareness of healthcare facilities.
- b. The assessment methods will include case studies, presentation in morbidity and mortality review meetings and presentation of audit projects if any.
- c. These methods of assessment shall have equal weight-age.

iv. **Communication Skills**

- a. These will be learnt from role models, supervisor and workshops.
- b. They will be assessed by direct observation of the candidate whilst interacting with the patients, relatives, colleagues and with multisource feedback evaluation.

v. **Professionalism as per Hippocratic Oath**

- a. This competency is learnt from supervisor acting as a role model, ethical case conferences and lectures on ethical issues such as confidentiality, informed consent, end of life decisions, conflict of interest, harassment and use of human subjects in research.
- b. The assessment of residents will be through multisource feedback evaluation according to proformas of evaluation and its' scoring method.

**Specialty Specific Competencies**

- i. The candidates will be trained in operative and procedural skills according to a quarterly based schedule.
- ii. The level of procedural competen will be according to a competency table to be developed by each specialty.

**APPENDIX "E"**  
(See Regulation 9-iii)

**MANDATORY WORKSHOPS**

1. Each candidate of MD/MS/MDS program would attend the 04 mandatory workshops and any other workshop as required by the university.
2. The four mandatory workshops will include the following
  - a. **Research Methodology and Biostatistics** ] 3 months
  - b. **Synopsis Writing**
  - c. **Communication Skills**
  - d. **Introduction to Computer / Information Technology and Software programs** ]
3. The workshops will be held on 03 monthly basis.
5. Each workshop will be of 02 - 05 days duration.
6. Certificates of attendance will be issued upon satisfactory completion of workshops.



**APPENDIX " G "**

(See Regulation 9ix, 9xxiii-d, 10, 11, 14 & 16)

**Supervisor's Evaluation**

**PROFORMA FOR CONTINUOUS INTERNAL ASSESSMENTS**

<b>1. Generic Competencies</b>		
(Please score from 1 – 100. 75% shall be the pass marks)		<b>Component Score</b>
		<b>Score achieved</b>
i.	Patient Care	20
ii.	Medical Knowledge and Research	20
iii.	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	
	• Informed Consent	10
	• End of life decisions	10
v.	Professionalism	
	• Punctuality and time keeping	04
	• Patient doctor relationship	04
	• Relationship with colleagues	04
	• Awareness of ethical issues	04
	• Honesty and integrity	04
<b>2. Specialty specific competencies</b>		
Please score from 1 – 100. 75% shall be the pass marks		<b>Score achieved</b>
Operative Skills / Procedural Skills		
<b>3. Multisource Feedback Evaluation (Please score from 1 – 100. 75% shall be the pass marks)</b>		
<b>4. Candidates Training Portfolio (Please score from 1 – 100.75% shall be the pass marks)</b>		
(Please score from 1 – 100. 75% shall be the pass marks)		<b>Component Score</b>
		<b>Score achieved</b>
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



Supervisor's Annual Review Report.

This report will consist of the following components:-

- i. Verification and validation of Log Book of operations & procedures according to the expected number of operations and procedures performed (as per levels of competence) determined by relevant board of studies.
- ii. A 90 % attendance in academic activities is expected. The academic activities will include: Lectures, Workshops other than mandatory workshops, Journal Clubs, Morbidity & Mortality Review Meetings and Other presentations.
- iii. Assessment report of presentations and lectures
- iv. Compliance Report to meet timeline for completion of research project.
- v. Compliance Report on Personal Development Plan.
- vi. Multisource Feedback Report, on relationship with colleagues, patients.
- vii. Supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the Examination Department.
- viii. 75 % score will be required to pass the Continuous Internal Assessment on annual review.

iii. The following key will be used for assessing operative and procedural competencies:

a. **Level 1 Observer status**

The candidate physically present and observing the supervisor and senior colleagues

b. **Level 2 Assistant status**

The candidate assisting procedures and operations

c. **Level 3 Performed under supervision**

The candidate operating or performing a procedure under direct supervision

d. **Level 4 Performed independently**

The candidate operating or performing a procedure without any supervision

iv. **Procedure Based Assessments (PBA)**

a. Procedural competency will assess the skill of consent taking, preoperative preparation and planning, intraoperative general and specific tasks and postoperative management

b. Procedure Based assessments will be carried out during teaching and training of each procedure.

c. The assessors may be supervisors, consultant colleagues and senior residents.

d. The standardized forms will be filled in by the assessor after direct observation.

e. The resident's evaluation will be graded as satisfactory, deficient requiring further training and not assessed at all.

f. Assessment report will be submitted

g. A satisfactory score will be required to be eligible for taking final examination.

**Multisource Feedback Evaluation**

- i. The supervisor would ensure a multisource feedback to collect peer assessments in medical knowledge, clinical skills, communication skills, professionalism, integrity, and responsibility.
- ii. Satisfactory annual reports will be required to become eligible for the final examination

**b) Completion Of Candidate's Training Portfolio**

- i. The Candidate's Training Portfolio (CTP) will be published (or computer based portfolio downloadable) by the university.
- ii. The candidates would either purchase the CTP or download it from the KEMU web site.
- iii. The portfolio will consist of the following components
  - a) Enrollment details.
  - b) Candidate's credentials as submitted on the application for admission form.
  - c) Timeline of scheduled activities e.g dates of commencement and completion of training, submission of synopsis and thesis, assessments and examination dates etc ( **Appendix H**)
  - d) Log Book of case presentations, operations and procedures recorded in an appropriate format and validated by the supervisor.
  - e) Record of participation and presentations in academic activities e.g lectures, workshops, journal clubs, clinical audit projects, morbidity & mortality review meetings, presentation in house as well as national and international meetings.
  - f) Record of Publications if any.
  - g) Record of results of assessments and examinations if any
  - h) Synopsis submission proforma and IRB proforma and AS&RB approval Letter
  - i) Copy of Synopsis as approved by AS&RB
- iv. Candidates Training Portfolio shall be assessed as per proforma given in "Appendix-G".



APPENDIX "F"

(See Regulation 9xxiii, 13, 14 & 16)

CONTINUOUS INTERNAL ASSESSMENTS

a) **Workplace Based Assessments**

Workplace based assessments will consist of Generic as well as Specialty Specific Competency Assessments and Multisource Feedback Evaluation.

Generic Competency Training & Assessments

The Candidates of all MD / MS / MDS programs will be trained and assessed in the following five generic competencies.

i. **Patient Care.**

- a. Patient care competency will include skills of history taking, examination, diagnosis, plan of investigation, clinical judgment, plan of treatment, consent, counseling, plan of follow up, communication with patient / relatives and staff.
- b. The candidate shall learn patient care through ward teaching, departmental conferences, morbidity and mortality meetings, core curriculum lectures and training in procedures and operations.
- c. The candidate will be assessed by the supervisor during presentation of cases on clinical ward rounds, scenario based discussions on patient management, multisource feedback evaluation, Direct Observation of Procedures (DOPS) and operating room assessments.
- d. These methods of assessments will have equal weightage.

ii. **Medical Knowledge and Research**

- a. The candidate will learn basic factual knowledge of illnesses relevant to the specialty through lectures/discussions on topics selected from the syllabus, small group tutorials and bed side rounds.
- b. The medical knowledge/skill will be assessed by the teacher during presentations to the supervisor.
- c. The candidate will be trained in designing research project, data collection, data analysis and presentation of results by the supervisor.