MS GENERAL SURGERY

DEPARTMENT OF SURGERY

LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCES

CURRICULUM

CONTENTS:

INTRODUCTION

The department of Surgery, Liaquat University of Medical & Health Sciences, runs the MS program to cater to the needs of specialist manpower of the province and provide postgraduates adequate and relevant training leading them to acquire the degree of MS in General Surgery. The training for MS is designed to prepare young surgeons to acquire core knowledge and skills in surgery to recognize and to deal efficiently wide range of surgical problems. The acquisition of degree expects the surgeons-in-training to identify surgical diseases, to take responsibility for admission of patients in need of care to a healthcare institution with adequate facilities, to order and interpret investigations, to deal independently and efficiently with life-threatening surgical conditions resulting from trauma or disease, and to seek senior and/or specialist help, if required.

The emphasis of the training and assessment is on current scientific and clinical knowledge required to undertake efficient and effective care of surgical patients, to make trainees life-long learners and to train them to indulge in research to practice evidence-based surgery. Trainees are expected to have a broad knowledge of the relevant basic science underlying surgical practice. They must also understand the scientific basis of investigations and treatment.

General Guidelines

ELIGIBILITY CRITERIA FOR ADMISSION TO MS GENERAL SURGERY

- MBBS or equivalent qualification registered with the PMDC
- One-year house job in an institution recognized by the PMDC, with General Surgery as a major Subject
- Certificate of passing MS Part-I Examination. This examination is to be considered as Screening Examination for Admission (SEA).
- Candidates who have passed FCPS or any other fellowship or equivalent examination from any of the other country in the subject of General Surgery and duly recognized by the PMDC are exempted from passing MS part examination for enrollment into the MS General Surgery program

GENERAL REGULATIONS

- The duration of MS degree course is four years and shall be counted from the date of joining.
- Candidates who have passed FCPS or any other fellowship or equivalent examination from any of the other country in the subject of General Surgery and duly recognized by the PMDC are given exemption 01 year of surgical training in General Surgery after passing MS part I examination for enrollment into the MS General Surgery program. However, these candidates have to fulfill all other requirements as laid down to appear for M.S final examination.
- The candidate having minimum of 05 years job as medical officers working in department of surgery in an institution recognized by the university within last five years, shall be entitled for exemption of a maximum of one year once enrolled in M.S program.
- Candidate admitted to MS General Surgery can break his break his/her training period only after passing Midterm examination for extra ordinary reasons.
- Once admitted into the MS program, candidate has to pass the midterm examination within 07 year of enrollment into the course otherwise matter will be put into the Postgraduate committee for further necessary consideration.
- Candidate enrolled into the program has to pass the MS final examination within 08 years of enrollment into the course, otherwise matter will be put into the Postgraduate committee for necessary consideration.
- In case, if Postgraduate committee allows candidate to appear for examination as per general rules of university, in that case candidate has to follow these rules for appearance in Midterm and final term examination. These includes, appearance in all consecutive examinations without break and has to submit examination fees double to regular fee.
- MS general Surgery is a full time residency program. The postgraduate trainee will not be allowed to do private practice and/or join any institution on part time or full time basis.
- Any candidate who remains absent for more than a week shall furnish an explanation in writing justifying his/her absence. On absence of a period of one month or more, he/she will be served a show cause notice and will be required to present himself/herself for personal hearing before the postgraduate committee. Failing to satisfy the committee will make the candidate liable for termination from the course.
- Every candidate has to maintain a logbook during the entire period of training.
- English shall be the medium of learning/examination.
- Any change in the dates and format of the examination will be notified by the University before the examination.
- A competent authority appointed by the University has the power to debar any candidate from examination if he/she is satisfied that the candidate is not suitable to take the examination because of using unfair means/misconduct or other disciplinary reasons.

ENROLLMENT

- The candidate should enroll as postgraduate student at Liaquat University of Medical & Health Sciences within one month of admission.
- The candidate must also register himself/herself as a postgraduate student with Pakistan Medical & Dental Council, within three months of admission.

REGISTRATION

- Every MS student shall submit the prescribed application form for registration as research scholar, duly signed by the Supervisor to the Director, Postgraduate Medical Centre, Liaquat University of Medical & Health Sciences.
- The application form for registration shall be accompanied by:
    i. Two attested copies of recent passport size photographs
    ii. Copy of last qualified examination certificate, duly attested
    iii. Copy of National Identity Card, duly attested
    iv. Eligibility certificate, in case of candidate from other university
    v. Photocopy of Enrolment Card
    vi. Research synopsis, within six months of admission. If he/she fails to do so within one year the admission shall liable to be cancelled.

MS PART-I EXAMINATION

- Passing of MS Part-I examination is mandatory for all candidates seeking admission to the MS General Surgery degree program
- The MS Part-I examination shall consist of two papers of 02 hours duration each. Paper I will assess candidates knowledge of basic medical sciences and Paper II will deal with relevant surgical and allied sciences.
- Candidate has to secure minimum of 60% marks in both papers to be eligible for training in M.S General Surgery

FORMAT OF MS-I THEORY EXAMINATION

Paper I	100 Single Best MCQ	2 hours
Paper II	100 Single Best MCQ	2 hours

TABLE OF SPECIFICATIONS OF PAPER-I (BASIC MEDICAL SCIENCES)

Paper-I

ANATOMY **(40%)**

Embryology (early and general)	2.5%
Cell biology	2.5%
Epithelium	2.5%
Connective tissues	2.5%
Bone and cartilage	2.5%
Muscles	5%
Nervous system	5%
Cardiovascular system/blood/bone marrow	5%
Lymphoid system and immunology	5%
Respiratory system	5%
Integumentary system	5%
Gastrointestinal tract and hepatobiliary system	5%
Endocrine glands	5%
Reproductive system	5%
Urinary system	5%
Eye & ear	5%
Head & neck	10%
Throat	5%
Abdomen	5%
Pelvis	5%
Extremities and spine	5%

PATHOLOGY (25%)

Cell Injury and adaptation	10%
Inflammation & repair	10%
Surgical pathology	30%
Neoplasia	20%
Immunity	5%
Environmental radiation	5%
Haemodynamics	10%
Infectious diseases	10%

PHYSIOLOGY (20%)

General physiology & structure/function of cell	10%
Membrane physiology	5%
Heart physiology	15%
Circulation	5%
Body fluid and kidney	15%
Blood	10%
Respiration	10%
Central & peripheral nervous system	15%
Gastrointestinal tract	5%
Endocrine& reproductive system	10%

PHARMACOLOGY (10%)

General pharmacology	10%
Antimicrobials	20%
Hormones	20%
Cardiovascular system	20%
Central & peripheral nervous system	20%
ANSAIDS and drug therapy of inflammation	10%

BIOCHEMISTRY (5%)

Cell and biophysics	10%
Carbohydrates	5%
Proteins	5%
Lipids	5%
Enzymes	10%
Vitamins	5%
Minerals and nutrition	20%
Metabolism	25%
Endocrine	10%
Genetics	5%

TABLE OF SPECIFICATION
PAPER II
M.S- PART I: GENERAL SURGERY

S. No	Subject	Share of subject
1	General Surgery	75%
2	Orthopedics	4%
3	Gynecology and Obstetrics	2%
4	Urology	4%
5	Pediatrics surgery	3%
6	Plastic surgery	3%
7	Anesthesia and critical care	2%
8	Cardio Thoracic surgery	3%
9	Head and Neck including Neurosurgery	4%
	Total	100%

Sr. No	General Surgery	75
I.	**BASIC PRINCIPALS OF SURGERY**	**20**
1	Metabolic Response to Injury	1
2	Shock Hemorrhage & Transfusion	3
3	Wound Healing & Tissue Repair	2
4	Tissue Engineering & Regenerative Therapy	1
5	Surgical Infections	1
6	Tropical Infection and Infestation	1
7	Basic Surgical Skills	1
8	Diagnostic Imaging	1
9	Gastro Intestinal Endoscopy	1
10	Principles Of Minimal Access Surgery	1
11	Tissue & Molecular Diagnosis	1
12	Principles Of Oncology	1
13	Surgical Audit & Research	1
14	Ethics & Law In Surgical Practice	1
15	Human Factors, Patients Safety & Quality Improvement	1
16	Global Health & Surgery	1
17	Transplantation	1
II.	**PERIOPERATIVE CARE**	**08**
1	Preoperative Care Including the High-Risk Surgical Patient	2
2	Daycare Surgery	1
3	Post-Operative Care Including Perioperative Optimization	2
4	Nutrition & Fluid Therapy	3
III.	**TRAUMA**	**04**
1	Early Assessment & Management Of Severe Trauma	2
2	Maxillofacial Trauma	1
3	Disaster Surgery	1
IV.	**BREAST AND ENDOCRINE**	**06**
1	Thyroid Gland	2
2	Para Thyroid Glands	1
3	The Adrenal Glands & Other Endocrine Disorders	1
4	The Breast	2
V.	**Oral cavity, Neck and Salivary Glands**	**03**
1	Oral cavity	01
2	Neck	02
3	Salivary Glands	01

VI.	**VASCULAR DISORDERS**	**04**
	Arterial Disorder	1
	Venous Disorders	2
	Lymphatic Disorders	1
VII.	**ABDOMINAL**	**30**
	Abdomen Wall, Hernia And Umbilicus	2
	The Peritoneum, Omentum, Mesentery And Retroperitoneal Space	2
	Esophagus	2
	Stomach & Duodenum	2
	Bariatric & Metabolic Surgery	2
	The liver	2
	The Spleen	2
	The gallbladder and bile ducts	2
	The pancreas	2
	The Small Intestine	2
	The Large Intestine	2
	Intestinal Obstruction	2
	The Vermiform Appendix	2
	The Rectum	2
	The Anus and Anal Canal	2
	Total	**75**

TABLE OF SPECIFICATION (TOS)
M.S PART I
SUB SPECIALTIES

Sr. No	**Subspecialties**	**25**
	Pediatric Surgery	**03**
1.	Congenital disorders	**1**
2.	Infancy disorders	**1**
3.	Childhood disorders	**1**
	Orthopedics	**04**
1	Trauma	**2**
2	Infections	**1**
3	Musculoskeletal disorders	**1**
	Plastic surgery	**03**
1	Skin and subcutaneous benign swellings including infections	**1**
2	Skin and subcutaneous malignant swellings	**1**
3	Burns	**1**
	Head and Neck surgery including Neurosurgery	**04**
1	Trauma	**1**
2	Congenital anomalies	**1**
3	Eyes and orbit	**1**
4	Ear, Nose and Throat	**1**
	Cardiothoracic surgery	**03**
1	Cardiac surgery	**1**
2	Thorax including trauma	**2**
	Urology	**04**
1	Kidneys and ureter	**1**
2	Urinary Bladder and Prostate	**1**
3	Urethra and Penis	**1**
4.	Testis and scrotum	**1**
	Gynae and Obstetrics	**02**
1	Acute Gynecological emergencies	**2**
	Anesthesia and critical care	**02**
1	Anesthesia	**1**
2	Critical care	**1**
	TOTAL	**25**

Mission Statement, Learning Objectives & Outcome

MISSION STATEMENT OF THE LIAQUAT UNIVERSITY OF MEDICAL & HEALTH SCIENCES

The mission of Liaquat University of Medical & Health Sciences is to foster excellence in health professions education and promote a culture of research, by educating and training undergraduate and graduate students of medical and health sciences in accordance with highest professional standards and ethical values, and to meet the healthcare needs of the community through dissemination of knowledge and service.

MISSION STATEMENT OF THE MS GENERAL SURGERY PROGRAM

The mission of MS General Surgery program at LUMHS is to train a doctor to become competent to practice surgery efficiently and effectively, based on sound scientific knowledge and skill, to exercise empathy towards patients and to maintain high ethical standards.

LEARNING OBJECTIVES & OUTCOMES

At the end of the training for MS General Surgery, the trainee shall be able to:

1. Understand basic principles of Surgery

2. Diagnose patients presenting with various surgical problems by:
   - Taking proper history
   - Performing complete physical examination
   - Planning an inquiry strategy
   - Ordering and interpreting relevant investigation(s)
   - Making a working/provisional diagnosis

3. Manage surgical patients by:
   - Providing pertinent pre-operative care
   - Performing required surgical procedures, both elective and emergent, independently and according to the laid down competencies
   - Managing complications effectively
   - Referring the patients to relevant sub-specialties, when required

   Conduct scientific research, perform literature search, develop his/her own hypothesis and to write publishable article(s)

4. Develop interpersonal communication skills by:
   - Identifying/practicing traits of a team leader
   - Working both as an effective team member / team leader
   - Giving priority to patients' rights and values in decision making process
   - Identify and resolve ethical dilemmas

5. Practice and maintain high standards of professionalism

Core Curriculum & Competencies

SYLLABUS

Following is the list of topics, which are considered essential, and it is expected that every trainee will cover them during his/her four-year MS General Surgery training period. This list, however, is not exhaustive, and is subject to variation with the advent of new advances in General Surgery and allied sciences.

Basic Principles of Surgery

Diagnosis and management of shock, Pain management, Asepsis/antisepsis/sterilization, Fluid and electrolyte balance, Surgical Nutrition, Antibiotics in surgical patients, Blood transfusion, Surgical infections, Cancer, Premalignant lesions/Early diagnosis/Principles of treatment, Surgical audit, Transplantation, Basic surgical skills, Surgical haemostasis, minimally invasive surgery, Day case surgery, Recent advances in surgery

Trauma & Orthopedic Surgery

Care of multiply injured patients, Cardiopulmonary resuscitation, Head injuries, Facio-maxillary injuries, Spinal injuries, Chest injury, Abdominal injury, Vascular injury, Nerve injury, Muscle and tendon injury, Skin and soft tissue injury/Contusion/Laceration, Fractures/Dislocations, Amputations, Burns, High velocity missile/Blast injuries, disaster management,

Head & Neck

Salivary glands, Cervical lymph nodes, Swellings of the neck, oral malignancies, Thyroid, Parathyroid,

Thorax

Diseases of pleura and pericardium, Chest wall, Heart, lungs, Mediastinum, Breast, Thymus, Large vessels, Diaphragm, Esophagus

Abdomen

Acute abdomen, Hernias, umbilicus and abdominal wall, The peritoneum, omentum, mesentery and retroperitoneal space, Stomach and duodenum, liver, spleen, gall bladder and bile ducts pancreas small and large intestines Intestinal obstruction vermiform appendix rectum anus and anal canal

Genitourinary System

Urinary symptoms and investigations, kidneys and ureters, urinary bladder prostate and seminal vesicles, Urethra and penis Testis and scrotum, Gnaecology (Pelvic anatomy and reproductive physiology the common causes of vaginal bleeding and acute pain in early pregnancy the surgical management of acute pelvic inflammatory disease, endometriosis, uterine fibroids and ovarian tumours)

Vascular Surgery

Disorders of arteries, veins and lymphatics

Subspecialties

Basic principles of Paediatric Surgery, Plastic Surgery, Neurosurgery, Anaesthesia & Intensive Care

Biomedical Ethics& Professionalism

Theories and principles of bioethics, informed consent, Physician-patient relationship, Physician-pharma relationship, Ethical dilemmas

CORE COMPETENCIES

Following is the list of core competencies, which the MS trainee is expected to acquire during his/her training period. The list of competencies is designed year wise and the level of competence to be achieved each year is arranged as follows;

1. As observer
2. As assistant
3. Performance under supervision
4. Performed independently

COMPETENCIES	1st YEAR	2nd YEAR	3rd YEAR	4th YEAR
A: Patient Management				
History taking	4	4	4	4
Performing physical examination	4	4	4	4
Ordering investigations	2	3	4	4
Interpretation of investigation results	2	2	3	4
Preoperative assessment	2	3	3	4
Tabulating treatment plan of the patient	2	3	4	4
Postoperative care of the patient	2	3	4	4
B: Surgical Knowledge and Application				
Preoperative preparation for surgical procedures	2	3	4	4
Aseptic techniques	2	3	4	4
Positioning of patient on operation table • Perineal surgery • Thoracotomy • Laparotomy • Renal surgery • Head & neck surgery • Surgical procedure on the back	1	2		4
Common surgical Instruments & appliances	3	4	4	4
Suture materials used in different surgical procedures stapling devices and techniques	3	4	4	4
C: Minor Surgical Procedures				
Airway maintenance including surgical airway	1	2	3	4
CPR	2	4	4	4
Suturing of wound, removal of sutures, wound dressings, I&D of abscess	2	3	4	4
Application of POP, splinting & bandaging	1	1	3	4
Venesection	2	4	4	4
Placement CVP lines and monitoring	1	2	3	4
Chest intubation	1	3	3	3
Biopsy of lymph nodes, skin lesions, subcutaneous lumps	2	3	4	4
Excision of soft tissue tumors and cysts	2	3	4	4
Split skin graft	1	1	3	4
Incisions for abdominal surgeries & closure of abdomen	1	2	3	4
Upper GI endoscopy & sigmoido-colonoscopy	2	3	3	4
ERCP	1	2	3	4
Liver biopsy	1	2	4	4
FNAC & trucut biopsy	1	3	4	4

D: General Surgery				
Hernia repair	1	2	3	4
Operations on breast	1	2	3	4
Haemorrhoids, fissures and fistulae	1	2	3	4
Operations on scrotum and testis	1	2	3	4
Appendicectomy	1	2	3	4
Cholecystectomy	1	2	3	4
Oesophagectomy	1	1	2	2
Gastrectomy	1	1	2	3
Whipple's operations	1	1	2	3
Exploratory laparotomy	1	2	3	4
Colectomies	1	2	3	4
Intestinal resection and anastomosis	1	2	3	4
Stoma formation	1	2	3	4
Laparoscopic cholecystectomy	1	2	3	4
Laparoscopic hernia repair	1	2	3	3
Use of stappling guns	1	2	3	3
Surgery for varicose veins	1	2	3	4
Vascular repair	1	2	3	4
E: Head and Neck				
Burr hole for cerebral decompression		**1**	**2**	
Intracranial operations & operations for spinal decompression	-	**1**	**2**	
Operations on thyroid, parathyroids, neck swellings and salivary glands	**1**	**2**	**3**	**3**
F: Thoracic Surgery				
Lobectomy	-	**1**	**2**	-
Pneumonectomy	-	**1**	**2**	-
Removal of hytatid cyst lung	-	**1**	**2**	-
Decortication	-	**1**	**2**	-
G: Pediatric Surgery				
Rectal & umbilical polyp	**1**	**2**	**3**	**4**
Imperforate anus	**1**	**2**	**3**	**4**
Congenital malformations of abdominal viscera	-	**1**	**2**	-
Hypospadias	-	**1**	**2**	-
Epispadias	-	**1**	**2**	-
Umbilical & inguinal hernia	-	**1**	**2/3**	**4**
Hydrocele	-	**1**	**2/3**	**4**
H: Urological Surgery				
Suprapubic cystostomy	-	**1**	**2**	**3/4**
Prostatectomy	-	**1**	**2**	-
Vesicolithotomy	-	**1**	**2/3**	**4**
Urethral dilatation	-	**1**	**2**	-
Operations on kidney & ureter	**1**	**2**	**3**	**4**
Treatment of bladder &urethral injuries	**1**	**2**	**3**	**4**
TURP	-	**1**	**2**	-
Endoscopic Urology	_	**1**	**2**	-
Transvesical & retro pubic prostatectomy	-	**1**	**2**	**3/4**
Percutaneous nephrolithotomy	-	**1**	**2**	-
ESWL	_	**1**	**2**	-

H: Plastic Surgery				
Skin grafting	**1**	**2**	**3**	**4**
Burn care	**1**	**2**	**3**	**4**
Myocutaneous flaps	**-**	**1**	**2**	**-**
Cleft lip	**-**	**1**	**2**	**-**
Cleft palate	**-**	**1**	**2**	**-**
Repair of deformities	**-**	**1**	**2**	**-**
Cosmetic surgery	**-**	**1**	**2**	**-**
I: Intensive Care				
Use of ventilators	**-**	**1**	**2**	**-**
Fluid & electrolyte balance	**-**	**1**	**2**	**3/4**
Monitoring devices	**-**	**1**	**2**	**3/4**
Inotropic agents	**-**	**1**	**2**	**3/4**
Care of unconscious patient	**-**	**1**	**2**	**3/4**
ICU complications	**-**	**1**	**2**	**-**
J: Anaesthesia				
Local anesthesia and regional anesthesia	**-**	**1**	**2**	**3/4**
Epidural block	**-**	**1**	**2**	**-**
Principles of general anesthesia, anesthetic agents and muscle relaxants	**-**	**1**	**2**	**¾**
Management of pain	**-**	**1**	**2**	**3/4**
K: Gynaecology & Obstetrics				
C/section& D&C	**-**	**1**	**2**	**-**
Hysterectomy	**-**	**1**	**2**	**-**

DURATION OF TRAINING

The duration of the course will be 4 years, upon which an exit or final examination in General Surgery shall be conducted.

CLINICAL POSTINGS

1. **Surgical Posting:** Each postgraduate is posted in a surgical unit soon after joining the course.
2. **One-year rotation in allied specialties:** This is done after the postgraduate has spent twelve months in learning basic ward work and skills in the surgical unit. This rotation includes allied departments of Pediatric Surgery, Urology, Neurosurgery, OBG, Plastic Surgery, Accident and Emergency department, Radiology department, Surgical ICU and Orthopedic Surgery for a minimum period of 8-weeks each.

MODES OF INFORMATION TRANSFER (MITs)

The teaching in the unit is done by the consultants of the respective unit. The various learning and teaching activities include:

- Clinical Grand Rounds (CGR)
- Case presentations
- Journal club presentations
- Clinico-pathological conferences
- Morbidity & Mortality meetings
- Continuous Medical Education (CMEs)

LOG BOOK

The MS trainees are expected to log their academic and clinical work carried during their training period in prescribed logbook on daily basis. The log book has to be signed by the supervisor regularly.

THESIS OR Research Paper

- Every postgraduate trainee shall carry out work on an assigned research project under the guidance of his/her supervisor, approved by the University.
- The student, with the help of the supervisor, (i) will identify a relevant research problem, (ii) conduct a critical review of literature, (iii) formulate a hypothesis, (iv) determine the most suitable study design, (v) state the objectives of the study, (vi) prepare a synopsis, (vii) undertake a study according to the protocol, and (viii) analyze and interpret research data, and draw conclusions.
- The synopsis for the thesis or research paper shall be submitted to the university by the end of the first year of training. The synopsis is to be approved by the Departmental Synopsis Committee, the Research Ethics Committee (REC) and the Advanced Study & Research Board (ASRB).
- The research work shall be written and submitted in the form of a thesis six months before the date of theory examination.
- All research work will be checked for plagiarism through Turnitin ®before sending to external reviewers.
- Research article need to be submitted and approved for publication in at least W or X category Journals

WORKSHOPS

The postgraduates are required to attend the following four mandatory/optional workshops.

- Research Methodology workshop

6. Communication Skills workshop
7. Computer & Internet workshop
8. Basic Surgical Skills workshop (optional)
9. SPSS workshop (optional)

SUGGESTED READING MATERIAL

A: Textbooks

- Bailey & Love's Short Practice of Surgery
- Current Surgical Diagnosis & Treatment
- Sabiston Text Book of Surgery, Part I & II
- Essential Surgical Practice by Cuscheiri
- Schwartz's principles of Surgery
- Essential Surgery
- Principles and Practices of Surgery

B: Pocket Books

- Oxford Handbook of Surgery
- Washington Manual of Surgery
- Lecture Notes in General Surgery by Harold Ellis
- Churchill's Pocket book of Surgery

C: Books on Physical Signs / Examination Techniques

- An introduction to the symptoms and signs of surgical disease by Norman Browse
- Churchill, pocketbook of differential diagnosis by A. Raftery E. Lim
- Hamilton Baileys Demonstration of Physical Signs in Clinical Surgery
- Macleod's Clinical Examination

D: Textbooks of Operative Surgery

- Farquharson's Text Book of General Surgery
- Essential General Surgical Operations by R. M. Kirk
- Mastery of Surgery by Baker R. J.

E: Self-assessment books

- Surgical Recall by Lome H. Blackbourne
- Surgical Multiple-Choice Questions

F: Journals

- JLUMHS/JCPSP/JPMA/JAMC/JSP/WJS/Surgery International/ BJS/Annals of Surgery

Assessment

ELIGIBILITY FOR MIDTERM EXAMINATION

1. The candidate shall have undertaken two years of the specified training in Surgery, all of which should be after passing MS Part-I, at Liaquat University of Medical & Health Sciences or an institution accredited by the university
2. The candidate shall have attended a minimum of 75% of lectures, demonstrations, and practical work
3. Certificate of attendance from supervisor
4. Certificate of having passed MS Part-I examination
5. Letter of submission of Synopsis for thesis or research article
6. Duly signed, completed logbook
7. Certificates of attendance of mandatory workshop

ELIGIBILITY FOR FINAL EXAMINATION

8. The candidate shall have undertaken four years of the specified training in Surgery, all of which should be after passing MS Part-I, at Liaquat University of Medical & Health Sciences or an institution accredited by the university
9. The candidate shall have attended a minimum of 75% of lectures, demonstrations, and practical work
10. Certificate of attendance from supervisor
11. Certificate of having passed MS Part-I examination
12. Letter of approval of thesis or research article
13. Duly signed, completed logbook
14. Certificates of attendance of mandatory workshop

FORMAT OF EXAMINATION

Every candidate has to pass both Part-I and Part-II of MS examination (unless exemption is granted by the university).

MS PART-I EXAMINATION

- Passing of MS Part-I examination is mandatory for all candidates seeking admission to the MS General Surgery degree program
- The MS Part-I examination shall consist of two papers. Paper I will assess candidates knowledge of basic medical sciences and Paper II will deal with relevant surgical and allied sciences.

MID TERM EXAMINATION

- The MID TERM examination consists of theory and clinical examinations based on OSCE
- The theory examination comprises of one paper of 100 BCQs (100Marks) of 2.5 hours. Candidates who secured 65% marks become eligible to appear for clinical examination. Candidates has to clear OSCE in total 03 attempts.
- The clinical examination includes Observed Structured Clinical Examination (OSCE) comprised of 12 interactive stations. Every candidate has to secure 65% marks in both papers for passing mid-term examination.

TABLE OF SPECIFICATION
MID TERM EXAMINATION
M.S GENERAL SURGERY

S. No	Subject	Share of subject
1	General Surgery	60%
2	Orthopedics	6%
3	Urology	6%
4	Head and Neck including Neurosurgery	5%
5	Pediatrics surgery	5%
6	Plastic surgery	5%
7	Anesthesia and critical care	5%
8	Cardio Thoracic surgery	4%
9	Gynecology and Obstetrics	4%
	Total	100%

Break up of TOS

S. No	Topic	BCQs	OSPE
	General Surgery	**60**	**08**
	Basic principles of Surgery	**20**	**02**
1	Metabolic Response To Injury	1	
2	Shock Hemorrhage & Transfusion	3	
3	Wound Healing & Tissue Repair	2	
4	Tissue Engineering & Regenerative Therapy	1	
5	Surgical Infections	1	
6	Tropical Infection And Infestation	1	
7	Basic Surgical Skills	1	
8	Diagnostic Imaging	1	
9	Gastro Intestinal Endoscopy	1	
10	Principles Of Minimal Access Surgery	1	
11	Tissue & Molecular Diagnosis	1	
12	Principles Of Oncology	1	
13	Surgical Audit & Research	1	
14	Ethics & Law In Surgical Practice	1	
15	Human Factors, Patients Safety & Quality Improvement	1	
16	Global Health & Surgery	1	
17	Transplantation	1	
	Perioperative care	**08**	**01**
1	Preoperative Care Including The High Risk Surgical Patient	2	
2	Daycare Surgery	1	
3	Post-Operative Care Including Perioperative Optimization	2	
4	Nutrition & Fluid Therapy	3	
	Trauma	**03**	**01**
1	Early Assessment & Management Of Severe Trauma	1	
2	Maxillofacial Trauma	1	
3	Disaster Surgery	1	
	Breast and Endocrine	**03**	**01**
1	Thyroid Gland	1	
2	Para Thyroid, Adrenal & Other Endocrine Disorders	1	
3	Breast	1	
	Oral cavity, Neck and Salivary Glands	**03**	**01**
1	Oral cavity	01	
2	Neck	01	**OR**
3	Salivary Glands	01	
	Vascular disorders	**03**	**01**
1	Arterial Disorder	1	
2	Venous Disorders	1	
3	Lymphatic Disorders	1	
	Abdomen	**20**	**02**
1	Abdomen Wall, Hernia And Umbilicus	2	
2	The Peritoneum, Omentum, Mesentery And Retroperitoneal Space	1	
3	Esophagus	2	
4	Stomach & Duodenum	2	
5	Bariatric & Metabolic Surgery	1	
6	The liver	1	
7	The Spleen	1	

8	The gallbladder and bile ducts	2	
9	The pancreas	1	
10	The Small Intestine	1	
11	The Large Intestine	2	
12	Intestinal Obstruction	1	
13	The Vermiform Appendix	1	
14	The Rectum	1	
15	The Anus And Anal Canal	1	
	Total	**60**	**08**
	Subspecialties	**40**	**04**
	Orthopedics	**06**	**01**
1	Trauma	2	
2	Infections	1	
3	Musculoskeletal disorders	1	
	Urology	**06**	**01**
1	Kidneys and ureter	1	
2	Urinary Bladder and Prostate	1	
3	Urethra and Penis	1	
4.	Testis and scrotum	1	
	Head and Neck surgery including Neurosurgery	**05**	**01**
1	Trauma	1	
2	Congenital anomalies	1	
3	Eyes and orbit	1	**OR**
4	Ear, Nose and Throat	1	
	Pediatric Surgery	**05**	**01**
5.	Congenital disorders	1	
6.	Infancy disorders	1	**OR**
7.	Childhood disorders	1	
	Plastic surgery	**05**	**01**
1	Skin and subcutaneous benign swellings including infections	1	
2	Skin and subcutaneous malignant swellings	1	**OR**
3	Burns	1	
	Anesthesia and critical care	**05**	**01**
1	Anesthesia	1	
2	Critical care	1	
	Cardiothoracic surgery	**04**	**01**
1	Cardiac surgery	1	**OR**
2	Thorax including trauma	2	
	Gynae and Obstetrics	**04**	**01**
1	Acute Gynecological emergencies		
	Subtotal	40	
	Total	**100**	**12**

MS PART-II EXAMINATION

- The MS Part-II examination consists of theory, OSCE examination and clinical examinations.
- The theory examination comprises of 02 papers each of 100 BCQs (100Marks).
- Candidate has to secure 65% marks in all components to be declared qualified and pass MS final examination.
- Only after passing theory examination, candidate become eligible for OSCE and clinical examination. Candidate has to pass OSCE and clinical examination in maximum 03 attempts.
- OSCE examination comprise of 12 interactive OSCE stations of total 100 marks.
- Candidates who has been able to secure 65% marks in OSCE examination is declared pass in OSCE examination and need NOT TO APPEAR for this in remaining attempts to clear clinical examination.
- Clinical examination comprises of one long case of 50 marks and 04 short cases of total 50 marks.

FORMAT OF MS PART-II THEORY EXAMINATION

Paper I	100 Single best MCQs	2.5 hours
Paper II	100 Single best MCQs	2.5 hours

LAYOUT OF LONG CASE

Each candidate will be allotted one long case and shall be allowed 30 minutes for history taking, physical examination and tabulation of the management plan, before being assessed by a penal of examiners for next 30 minutes. The candidate will be assessed in his core surgical knowledge, clinical, communication and case presentation skills.

LAYOUTOF SHORT CASE

Each candidate will be allotted four short cases, with 10 minutes spent on each case. A pair of examiners will assess the candidate, focusing on his/her examination skills.

LAYOUT OF OSCE

The OSCE will consist of 12 interactive stations according to TOS, each of 6 minutes duration. The stations will be designed to test cognitive, psychomotor and communication skills. The performance of tasks will be checked with global rating checklists, each with an assigned score for different skills.

Table of Specification

Final examination
M.S GENERAL SURGERY

Two papers: SBQs type, each of 100 SBQs with 100 marks

Paper I: 40% of SBQs will be from subspecialties and remaining 60% will be General Surgery. It includes Surgery in General, Trauma, and Perioperative care

Paper II: All SBQs will be from remaining General Surgery topics including Abdomen, Vascular disorders, Breast, endocrine, salivary glands and Neck

Distribution of share of SBQS and OSCE

Subject	Share of subject in SBQ	Share of subject in OSCE
General Surgery	**80%**	**09**
Sub specialties	**20%**	**03**

Paper I

- Distribution of proportion of SBQs among subspecialties: 40% (40 SBQs)
- Distribution of SBQs among General Surgery topics. It includes Surgery in General, Trauma, and Perioperative care: 60% (60 SBQs)
- C1: 10%, C2: 20, C3: 70%

S. No	General Surgery Topics	60% (60 Marks)			
	Subtopics	**No. of BCQs**			
	Basic principles of Surgery	**40**			
		C1	**C2**	**C3**	**Subtotal**
1	Metabolic Response To Injury	0	0	2	**2**
2	Shock Hemorrhage & Transfusion	1	1	3	**5**
3	Wound Healing & Tissue Repair	0	1	2	**3**
4	Tissue Engineering & Regenerative Therapy	0	0	1	**1**
5	Surgical Infections	0	1	2	**3**
6	Tropical Infection And Infestation	0	0	2	**2**
7	Basic Surgical Skills	0	1	1	**2**
8	Diagnostic Imaging	0	1	1	**2**
9	Gastro Intestinal Endoscopy	0	1	2	**3**
10	Principles Of Minimal Access Surgery	1	0	2	**3**
11	Tissue & Molecular Diagnosis	0	0	2	**2**
12	Principles Of Oncology	1	0	2	**3**
13	Surgical Audit & Research	0	1	1	**2**
14	Ethics & Law In Surgical Practice	1	0	1	**2**
15	Human Factors, Patients Safety & Quality Improvement	0	0	1	**1**
16	Global Health & Surgery	0	0	1	**1**
17	Transplantation	0	1	2	**3**
	Subtotal	**04**	**08**	**28**	**40**
	Perioperative care	**09**			
		C1	**C2**	**C3**	
1	Preoperative Care, High Risk Surgical Patient	0	1	1	**02**
2	Daycare Surgery	0	0	2	**02**
3	Post-Operative Care, Perioperative Optimization	0	0	2	**02**
4	Nutrition & Fluid Therapy	1	1	1	**03**
		1	**2**	**6**	**09**
	Trauma	**11**			
		C1	**C2**	**C3**	
1	Early Assessment & Management Of Severe Trauma	0	1	1	**2**
2	Maxillofacial Trauma	0	0	1	**1**
3	Disaster Surgery	0	0	1	**1**
4	Chest trauma	0	1	1	**2**
5	Abdominal trauma including retroperitoneal trauma	1	0	2	**3**
6	Pelvic Trauma	0	0	1	**1**
7	Neck Trauma	0	0	1	**1**
		01	**02**	**08**	**11**
	Subspecialties	**40**			
		C1	**C2**	**C3**	
		04	**08**	**28**	**40**

	Orthopedics	**07**			
		C1	**C2**	**C3**	
1	Trauma excluding pelvic trauma	0	1	2	**3**
2	Infections	1	0	1	**2**
3	Musculoskeletal disorders	0	0	2	**2**
		01	**01**	**05**	**07**
	Urology	**07**			
		C1	**C2**	**C3**	
1	Kidneys and ureter	0	1	1	**2**
2	Urinary Bladder and Prostate	1	0	1	**2**
3	Urethra and Penis	0	0	1	**1**
4	Testis and scrotum	0	1	1	**2**
		01	**02**	**04**	**07**
	Head and Neck surgery including Neurosurgery	**06**			
		C1	**C2**	**C3**	
1	Head Trauma	0	1	2	**3**
2	Congenital anomalies of Head and Neck	0	0	1	**1**
3	Infections of Head and Neck	1	0	1	**2**
		01	**01**	**04**	**06**
	Pediatric Surgery	**06**			
		C1	**C2**	**C3**	
1	Congenital disorders	0	1	1	**2**
2	Infancy disorders	0	1	1	**2**
3	Childhood disorders	0	0	2	**2**
		0	**2**	**4**	**6**
	Plastic surgery	**06**			
		C1	**C2**	**C3**	
1	Skin and subcutaneous benign swellings including infections	0	0	2	**2**
2	Skin and subcutaneous malignant swellings	0	1	1	**2**
3	Burns	1	0	1	**2**
		1	**1**	**4**	**6**
	Anesthesia and critical care	**04**			
		C1	**C2**	**C3**	
1	Anesthesia	0	0	2	**2**
2	Critical care	0	1	1	**2**
		0	**1**	**3**	**4**
	Cardiothoracic surgery	**02**			
		C1	**C2**	**C3**	
	Cardiac surgical diseases	0	0	1	**1**
	Pulmonary excluding trauma	0	0	1	**1**
		0	**0**	**2**	**2**
	Gynae and Obstetrics	**02**			
		C1	**C2**	**C3**	
	Acute Gynecological emergencies	0	0	2	**02**
	Subtotal	**10**	**20**	**70**	**100**
	Total	**100**			

Paper II
100 SBQs

- All from remaining General surgery topics
- C1: 10%, C2: 20, C3: 70%

S. No	General Surgery Topics	No. of BCQs (100)			
		C1	**C2**	**C3**	**Total**
		10	**20**	**70**	**100**
	Breast and Endocrine	**15**			
1	Thyroid Gland	1	1	3	**5**
2	Para Thyroid, Adrenal & Other Endocrine Disorders	0	1	4	**5**
3	Breast	1	1	3	**5**
		2	**3**	**10**	**15**
	Oral cavity, Neck and Salivary Glands	**09**			
		C1	**C2**	**C3**	**Subtotal**
1	Oral cavity	0	1	2	**03**
2	Neck	1	0	2	**03**
3	Salivary Glands	0	1	2	**03**
		1	**2**	**6**	**09**
	Vascular Disorders	**09**			
		C1	**C2**	**C3**	**Subtotal**
1	Arterial Disorder	0	1	2	**3**
2	Venous Disorders	1	0	2	**3**
3	Lymphatic Disorders	0	1	2	**3**
		1	**2**	**6**	**09**
	Abdomen	**67**			
		C1	**C2**	**C3**	**Subtotal**
1	Abdomen Wall, Hernia And Umbilicus	1	1	4	**6**
2	The Peritoneum, Omentum, Mesentery And Retroperitoeum	0	1	3	**4**
3	Esophagus	0	1	3	**4**
4	Stomach & Duodenum	0	1	4	**5**
5	Bariatric & Metabolic Surgery	0	1	3	**4**
6	The liver	0	1	2	**3**
7	The Spleen	0	1	3	**4**
8	The gallbladder and bile ducts	1	1	4	**6**
9	The pancreas	1	1	3	**5**
10	The Small Intestine	1	1	3	**5**
11	The Large Intestine	0	1	4	**5**
12	Intestinal Obstruction	0	1	3	**4**
13	The Vermiform Appendix	1	0	2	**3**
14	The Rectum	0	1	4	**5**
15	The Anus And Anal Canal	1	0	3	**4**
		6	**13**	**48**	**67**
		10	**20**	**70**	**100**
	Total	**100**			

Table of Specification for OSCE

Final Clinical Examination
M.S GENERAL SURGERY

S. No	Topics	Share of subject in OSCE
1.	Basic principles of Surgery and Perioperative care	01
2.	Trauma	01
3	Endocrine and Neck swelling	01
4	Breast and Vascular Disorders	01
5	Upper GI	01
6	Lower GI	01
7	Hepaticopancreaticobiliary	01
8	Counselling and consent	01
9	Skills	01
	Subtotal	**09**
1	Orthopedics	01
2	Urology	01
3	Head and Neck surgery including Neurosurgery	01 0r
4	Pediatric Surgery	01 0r
5	Plastic surgery	01 0r
6	Anesthesia and critical care	01 0r
7	Cardiothoracic surgery excluding trauma	00
8	Gynae and Obstetrics	00
	Subtotal	**03**
	Total	**12**

Program Evaluation

The program evaluation of MS Degree program is the prerogative of the Quality Enhancement Cell (QEC), which is expected to review and appraise the MS degree program from time to time to ensure that quality of education and training is maintained and enhanced.
The program evaluation is mandatory for|;

- Promoting public confidence that the quality and standards of the award of degree are enhanced and safeguarded
- Reviewing quality standards and the quality of teaching and learning
- Defining clear and explicit standards as points to reference for the auditors of the program to follow.
- Helping learners to know what they are expected during the training period.
- Developing qualifications framework by setting out the attributes and abilities that can be expected from the holder of the qualification.
- Developing program specifications and standard set of information, clarifying what knowledge, understanding, skills and other attributes a student has to acquire on successfully completing the MS General Surgery training program.

The Evaluation of MS general Surgery program is expected to be conducted at the end of every two years. Qualitative data about the standards of the program, motivation and skills of the faculty, trainees and alumni, and satisfaction of all the stake holders regarding the program will be achieved through predesigned survey forms. The data will be utilized to identify the weaknesses, if any, in the degree program and an implementation plan (IP) will be formulated clearly identifying ways and means, within a time frame, for rectification of the weaknesses.