بسم الله الرحمن الرحيم

# CURRICULUM / STATUTES/ REGULATIONS

## 5 YEARS CURRICULUM FOR UNIVERSITY RESIDENCY PROGRAMME IN PLASTIC SURGERY

*Faisalabad Medical University*

*Faisalabad*

# Contents

# Section A

## VISION STATEMENT:

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

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

## MISSION STATEMENT

The mission of the University is:

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

# STATUTES

## Nomenclature of the Proposed Course

The name of degree programmer shall be MS Plastic Surgery.

## Course Title:

MS Plastic Surgery

## Training Centers

Department of Plastic Surgery (accredited by Faisalabad Medical University)

## Duration of Course

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

## Course structure:

1. **Core knowledge:** Competency based learning for trainees. 2 exams to be conducted by university. Continuous internal assessment to be included throughout the program which is conducted by the department which will carry weightage in final assessment.
2. **Clinical Training** in plastic surgery
3. **Research and Thesis writing.**

**4.** Mandatory Workshops

throughout the course of program will be conducted. The basic workshops will be attended by all trainees from Urology and will be evenly distributed throughout the course:

1. Communication skills
2. Research synopsis and thesis writing skills
3. Basic Biostatistics and Research Methodology
4. Information Technology Skills
5. Initial Life Support (ILS) At the end of each workshop, assessment will be done regarding the workshop and certificates will be issued to passing trainees only. The workshops will be conducted by the University and will be paid as in all post-graduate program and supervised by the department of Medical Education, FMU, Faisalabad. The trained certified coaches/teachers will be invited and they will get incentive from the university. All the interested trainers will contact the department for inclusion in trainers list. Feedback of the facilitators will be recorded for the continuation of the process. Medical education department will issue yearly planner for these workshops in the light of curriculum document. University will certify it.

## 4. Specialty Specific workshops

Departments will conduct following workshop.

1. Basic surgical skills

The course is structured in three parts:

**Part I:** Candidate will start his/her training in Department of Plastic Surgery from 1st day till 6 months. Candidate will gain basic knowledge of the Plastic Surgery i.e., Anatomy, Physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care. During this time the candidate will select a topic for synopsis, complete his/her synopsis.

**Part II:** After 6 months (7th month) till 2 years, he/she will do a rotational training in

General surgery under a supervisor allocated in surgical department. The candidate shall undertake clinical training in fundamental concepts of general surgery from 7th months till 18 months. From month 19 to month 24, candidate will do three mandatory rotations as follows.

| | |
|---|---|
| Orthopedics | 2 months |
| Anesthesia | 2 months |
| Any one from Urology, Maxillofacial , | 2 months |

During Part-II, the candidate must submit the synopsis for approval. At the end of 2nd year, the Intermediate examination shall be held in fundamental concepts of General
Surgery. The clinical training in Plastic Surgery shall be rejoined from 3rd year onwards in Plastic Surgery department.

**Part III** is structured for 3rd, 4th and 5th calendar years in MS Plastic Surgery. The candidate shall undergo training to achieve educational objectives of MS Plastic Surgery along with one mandatory rotation.

**Any one from**

| | |
|---|---|
| Plastic surgery of other institute, Dermatology, ENT | 2 months |

# Section B:

## Admission Criteria

Central induction Policy as per Government rules

## Registration and Enrollment

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

The University will approve supervisors for MS Urology.

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

## Accreditation Related Issues Of The Institution

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

## B. Adequate resources

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

### C. Library

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

## Freezing of Program & leave Rules:

Freezing of training, Maternity leave, Ex Pakistan Leave and Extra Ordinary Leave etc. would be allocated through the Office of Dean Postgraduate to the competent authority.

# Section C:

# AIMS AND OBJECTIVES OF THE COURSE

## AIM

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

### LEARNING OBJECTIVES:

### GENERAL OBJECTIVES

MS Plastic 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:
    - ✦ Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
    - ✦ Consistently demonstrate sound surgical skills
    - ✦ 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:
    - ✦ Formulate a well-reasoned provisional diagnosis and management plan based on a thorough history and examination
    - ✦ Recognize the clinical features, accurately diagnose and manage problems
    - ✦ Formulate a differential diagnosis based on investigative findings
    - ✦ Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
    - ✦ Effectively recognize and manage complications
    - ✦ Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
    - ✦ Indicate alternatives in the process of interpreting investigations and in decision-making
    - ✦ Manage complexity and uncertainty
    - ✦ Consider all issues relevant to the patient
    - ✦ Identify risk
    - ✦ Assess and implement a risk management plan

- ✦ Critically evaluate and integrate new technologies and techniques.

4. Organize diagnostic testing, imaging and consultation as needed:
   - ✦ Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
   - ✦ Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
   - ✦ Critically evaluates the advantages and disadvantages of different investigative modalities
5. Communicate effectively:
   - ✦ Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
   - ✦ Communicate with the patient (and their family) the treatment options including benefits and risks of each
   - ✦ Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
   - ✦ Initiate the resolution of misunderstandings or disputes
   - ✦ Modify communication to accommodate cultural and linguistic sensitivities of the patient
6. Recognize the value of knowledge and research and its application to clinical practice:
   - ✦ Assume responsibility for self-directed learning
   - ✦ Critically appraise new trends in Plastic Surgery
   - ✦ Facilitate the learning of others.
7. Appreciate ethical issues associated with Plastic 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 Plastic Surgery
   - ✦ 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.

- 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

- o Effective use of resources to balance patient care and system resources
- o Identify and differentiate between system resources and patient needs
- o Prioritize needs and demands dealing with limited system resources.
- o Manage and lead clinical teams
- o Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team. o 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

## GENERAL OBJECTIVES

The objective 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 safe surgeons, researchers and clinicians in Plastic Surgery.

### SPECIFIC LEARNING OUTCOMES

On completion of the training programme, 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, skills and attitude required to practice Plastic Surgery at secondary and tertiary care level with proficiency in the Basic and applied clinical sciences, Basic Plastic surgery care, Plastic intensive care, Emergency medicine and Complementary surgical disciplines.

**Cognitive knowledge:** Describe embryology, applied anatomy, physiology, pathology, clinical features, diagnostic procedures and the therapeutics including preventive methods, (medical/surgical) pertaining to plastic surgery.

**Medical Knowledge - Goals**

1. 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
   - 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 2. Understand conditions that will complicate surgery.

3. Understand the appropriate techniques of tissue handling and skin closure.

**Medical Knowledge – Objectives**

1. Demonstrate comprehension of pertinent medical issues through presentation of patients to team on morning rounds.
2. Describe symptoms of healthy flaps and replants
3. Describe symptoms of unhealthy flaps and replants
4. Identify medications which may interfere with blood clotting
5. Identify alternatives to blood clotting medications
6. Name laboratory tests useful in the evaluation and management of blood clotting
7. Demonstrate proficiency in appropriate skin closure techniques in operating room
8. Demonstrate proficiency in appropriate tissue handling techniques in Operating room
9. Demonstrate proficiency in appropriate suturing techniques in operating room
10. Name laboratory tests useful in the evaluation and management of wound care

**Patient Care – Goals**

1. Learn to deliver responsive, timely care for all inpatients.
2. Understand the appropriate post-operative management of free flaps and replants.
3. Understand the appropriate post-operative management of the patient with a changing course.

4. Learn to synthesize all available information in order to make appropriate
5. clinical decisions.

**Patient Care - Objectives**

1. Demonstrate the ability to make a diagnosis and formulate a surgical plan.
2. Demonstrate appropriate tissue handling technique
3. Demonstrate appropriate suturing technique
4. Demonstrate appropriate skin closure technique
5. Demonstrate the ability to perform suture removal, dressing changes, and wound care.
6. Demonstrate the ability to document all patient encounters with legible chart notes.
7. Demonstrate the ability to accurately check all flaps or replants for any change in color, temperature, capillary refill or bleeding
8. 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
9. Justify selection of laboratory tests and diagnostic tests for each patient on the
10. service
11. Demonstrate the ability to dictate thorough discharge summaries on all inpatients.

**Practice – Based Learning – Goals**

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

**Practice – Based Learning - Objectives**

1. Critically discuss performance with respect to care of patients and progress made during rotation with Chief of Service or designee at midrotation meeting.
2. 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

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

### Systems-Based Practice - Objectives

1. Facilitate discharge planning by daily communication with inpatient care manager.
2. 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
3. Facilitate daily communication with consulting physicians
4. 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

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

### Interpersonal and Communication Skills – Objectives

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

### Professionalism - Goals

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

### Professionalism - Objectives

1. Use appropriate speech and tone of voice when speaking to patients , families, and other healthcare professionals.

2. Allow others the chance to speak, and listen attentively when being spoken to.
3. Demonstrate a conscientious approach to patient care by minimizing delay of care and minimizing passage of incomplete tasks to fellow residents.

## Skills and Procedures

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

# Section D:

# PROGRAMME FORMAT

## SCHEME OF THE COURSE OF MS PLASTIC SURGERY PROGRAM

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

| Course Structure | Components |
|---|---|
| Part- I | Basic knowledge of the Plastic Surgery i.e., Anatomy, Physiology and orientation to the subject, basic principles, history taking and case presentation, inpatient and out-patient care.<br>Selection of topic for synopsis and complete his/her synopsis<br><br>For first 6 months |
| Part- II | Core knowledge in Surgery: Training in clinical techniques of Surgery with first two mandatory workshops and basic surgical skill workshop and mandatory three rotations.<br>Synopsis is to be submitted at the end of 2nd year |
| Part- III | **Clinical component of Part III**<br><br>• Professional Education in Plastic Surgery: Training in Plastic Surgery during 3rd, 4th & 5th year of MS Plastic Surgery program. Three years of training with remaining compulsory workshops and<br>one mandatory rotation. |

| | |
|---|---|
| | **Research component of Part III**<br><br>• Research and Thesis Writing: Research work/Thesis writing project must be completed and thesis be submitted before the end of training. |

**Rotations:**

Plastic Surgery trainees will do three rotations in Part-II and one mandatory rotation during Part-III training.

| Serial no. | Rotation<br>Title | Duration | Placement |
|---|---|---|---|
| 1 | Orthopedic | 2 months | Part-II |
| 2 | Anesthesia | 2 months | Part-II |
| 3 | Any one from Maxillofacial, Urology | 2 months | Part-II |
| 4 | Anyone from Plastic Surgery , ENT, Dermatology | 2 months | Part III |

**Content list:**

**MS. Plastic Surgery For Intermediate Examination**

## 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 anesthesia and pain management Acute life support and critical care:
- Pathophysiology and management of shock
- Fluids and electrolyte balance/ acid base metabolism
- Hemostasis, 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
- **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:**

o 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
- 

O Plan investigations

O Clinical decision making

- Case work up and evaluation; risk management

**Pre-operative assessment and management:**

Cardiorespiratory physiology

O Diabetes mellitus

O Renal failure

O Pathophysiology of blood loss

O Pathophysiology of sepsis

O Risk factors for surgery

O Principles of day surgery

O Management of comorbidity

**Intraoperative care:**

O Safety in theatre

O Sharps safety

O Diathermy, laser use

O Infection risks

O Radiation use and risks

O Tourniquets

O Principles of local, regional and general anaesthesia Post-operative care:

O Monitoring of postoperative patient

O Postoperative analgesia

O Fluid and electrolyte management

O Detection of impending organ failure

O Initial management of organ failure

O Complications specific to particular operation

O 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

o Antibiotic side-

effects

- Principles of prophylaxis and treatment
-

Safely assess the multiply injured patient:

O History and examination

O 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

### 1. Trauma Surgery

- Tracheostomy
- Emergency thoracotomy

### 2. Surgical sepsis

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

## 3. 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 herniae , using open and laparoscopic techniques

## 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 mangement of chest drains
- Thoracotomy and post operative management

## MS Plastic Surgery

### Course Contents for Final Examination

### I. General Topics

1. History of Plastic Surgery
2. Scope of Plastic Surgery
3. Tissue distortion, tissue loss and its management
4. Tissue culture, Transplantation biology and its applications
5. Plastic Surgery instruments and equipments
6. Maintenance of medical records, informed consent
7. Applications of computer and related programs
8. Social psychological, ethical and medico legal aspects communication skills Implants, orthotics and prosthesis and applied to Plastic Surgery
9. Tissue expansion and tissue distraction
10. Management of Leprosy, leprosy deformities and leprosy reconstructive surgery
11. Endoscopic Plastic Surgery
12. Advances, recent advances and current trends in Plastic Surgery
13. Principles of surgical audit, understanding journal and review articles, text books and reference books, critical assessment of articles
14. Research methodology and biostatistics
15. Arteriovenous malformations, varicose veins, chronic venous insufficiency
16. Meningomyelocoele, encephalocoele, spinal fusion defects, ventral defects, anorectal anomalies

### II. Principal aspects of Plastic Surgery

## Skin

1. Anatomy and functions of skin
2. Diseases and other conditions affecting skin
3. Skin grafts, its take and behavior
4. Scars, unstable scars and scar contracture
5. Hypertrophic scars and Keloids
6. Flaps, anatomy and physiology, classification and applications
7. Pedicled skin flaps and tube pedicle

## Head and Neck

1. Embryology, anatomy, growth and development of face and facial skeleton
2. Structure and development of teeth
3. Temporomandibular joint and its dysfunction
4. Fractures of facial skeleton, management, sequel and subsequent surgery
5. Reconstruction of ear, eyelid, lip, nose, cheek and soft tissues of face
6. Congenital deformities of face and syndromes
7. Cleft lip and palate, embryogenesis, management, orthodontics, velopharyngeal incompetenesis and speech therapy
8. Craniofacial abnormalities, clefts, syndromes, microsomia, synostosis and hypertelorism Ptosis of eyelids
9. Facial Paralysis
10. Orthognathic surgery
11. Surgery of neck associated with congenital and acquired deformities
12. Rhinoplasty – corrective, aesthetic and reconstructive

13. Benign and malignant lesions and tumors of head and neck, tumor biology, management including chemotherapy, adjuvant therapy and radiotherapy
14. Reconstruction of mandible, maxilla and other bony defects
15. Prosthetic rehabilitation
16. Reconstruction of upper aerodigestive system

**Thorax**

1. Congenital and acquired defects of thorax and abdomen and its reconstruction
2. Decubitus ulcers and its management
3. Breast, anatomy, physiology, growth, development hormone influence, abnormalities, diseases, surgery and reconstruction, Gynecomastia
4. Reconstruction of full thickness defects of thorax and abdomen

**Lower extremity**

1. Anatomy and biomechanics of locomotor system
2. Functional anatomy of foot
3. Congenital and acquired deformities of lower extremity
4. Management of tissue defects following trauma
5. Lymphoedema

**Genitourinary**

1. Embryology and anatomy of the male and female genitourinary system and genitalia, undescended testis
2. Hypospadias, epispadias and ectopia vesicae, urinary diversion
3. Reconstruction of external genitalia
4. Vaginoplasty
5. Intersex
6. Infertility, vasectomy, tuboplasty, reconstruction

## Hand

1. Embryology and anatomy of hand and upper extremity
2. Clinical examination of hand and general principles of hand surgery
3. Acute hand injuries
4. Tendon injuries
5. Nerve injuries
6. Brachial plexus injuries
7. Fractures and dislocations of hand
8. Injuries and disorders of nail
9. Electro diagnostic tests
10. Ischemic conditions and vasospastic disorders
11. Nerve compression syndromes
12. Surgery of spastic and tetraplegic hand
13. Infections and diseases of hand and its management
14. Congenital abnormalities of hand and its management
15. Tendon transfers
16. Lymphoedema
17. Benign and malignant tumors of hand
18. Rehabilitation of hand, physiotherapy, occupation therapy, splintage and prosthesis
19. Rheumatoid arthritis
20. Vascular malformations, tumors
21. Reconstruction of thumb
22. Reconstruction of mutilated hand
23. Innervated flaps

## Micro-surgery

1. Principles of micro-surgery, micro vascular surgery and its applications
2. Replantations and revascularization surgery
3. Microvascular tissue transfer

## Burns

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

## Aesthetic Surgery

1. Chemical peeling, dermabrasion, laser treatment
2. Blepharoplasty
3. Surgery of ageing face
4. Body contouring, liposuction, abdominoplasty, hernioplasty
5. Reduction and augmentation mammoplasty
6. Hair transplant
7. Orthognathic aesthetic surgery

## Paediatric Plastic Surgery

1. General principles of cleft lip and palate management
2. General principles of craniofacial surgery
3. General principles of hypospadias management
4. General principles of congenital hand surgery
5. Prominent ears

## 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.

# Section E:

# Assessment Plan:

| Program duration | Course contents | Assessment method |
|---|---|---|
| At the end of 2nd year of program | 1. Revision of core MBBS component including basic and clinical components.<br>2. Basic knowledge and Acquiring skill related to the specialty according to the objectives made.<br>3. First 2 mandatory Workshops as described in course outline.<br>4. Three mandatory workshops<br>5. Submission of synopsis | **Intermediate Examination:** to be taken by university. It will include:<br>a) Written=300<br>b) TOACS/OSCE /LONG-CASE/ SHORT CASE=300<br>**Total Marks =600** |
| At the end of 5th year | 1. Training to act as an individual while managing patient or performing any task as defined by the objectives. | **Final Examination** to be conducted by university. |

| | | |
|---|---|---|
| | 2. Training to act as a teacher, researcher, leader and a player in a team.<br>3. Overall development of a health care professional with all the set competencies of the Program.<br>4. All the mandatory and Plastic Surgery oriented workshops to be completed as mentioned in the curriculum<br>5. Rotations as described in the curriculum completed<br>6. Thesis completion and submission | It will include:<br><br>a) Written=300<br><br>b) TOACS/OSCE/LONG CASE/SHORT CASE=300<br><br>c)Continuous internal assessment=100<br><br>Thesis evaluation =300<br><br>**Total marks=600+100+300=**<br><br>**1000** |

## Components of Mid-term Examination

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

**Total = 600**

**Components of Final Examination:**

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

**Total = 1000 Marks**

## Intermediate Examinations:

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

**Eligibility Criteria:**

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

**Intermediate Examination Schedule and Fee:**

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

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

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

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

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

**Written Examination:**

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

The marks of written exam will be divided as follows:

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

## Declaration of Results

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

**Clinical, TOACS/OSCE:**

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

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

Clinical, TOACS/OSCE = Total Marks 300

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

b) 1 Long Case = 100 marks

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

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

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

## Declaration of Results

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

## Final Examination

**At the end of 5th Calendar year of the program**

**Eligibility Criteria:**

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

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

**Final Examination Schedule and Fee:**

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

## Written Part of Final Examination

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

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

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

**Total=300**

**Paper 1**

- MCQs 100 (2marks each)

**Paper 2**

- SEQs 10 (10 marks each)

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

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

## Declaration of Results

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

d. Candidate who has passed written exam must have availed 03 attempts within 02 years to pass clinical and oral examination.

**Clinical, TOACS/OSCE:**

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

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

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

**Total= 300**

## Declaration of Results

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

- Candidate, who passes written examination, shall be allowed a

maximum of Three availed attempts within 2 years to pass Clinical/Oral examination. However, in case of failure to pass Clinical examination within stipulated attempts the credit of passing the written examination shall stand withdrawn and candidate shall have to take entire examination including written examination, afresh.

• Candidate who has completed his or her training along with all the requirements mentioned in the curriculum shall have to appear in the written of final examination at least once within period of 8 years (from the time of induction in the training). Failure to compliance with this, the matter will be referred to the competent authority through proper channel for final decision.

## Synopsis and Thesis Writing:

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

Thesis evaluation & defense will be carried out at the end of $4^{th}$/$5^{th}$ calendar year of MS.

## Submission / Evaluation of Synopsis

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

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

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

## Submission and evaluation of Thesis Evaluation (300 Marks)

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

## Continuous Internal assessment

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

## Attendance

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

## Presentations

- In addition to the conventional teaching methodologies interactive strategies will also be introduced to improve both clinical and communication skills in

the upcoming consultants. Presentations must be conducted regularly as scheduled and attended by all available faculty and residents. As a policy, active participation of the postgraduate resident will be encouraged. Proper written feedback will be given for these presentations and that will be a part of Resident's Portfolio as well. Reflection of the events to be written by the residents as well and must be included in their portfolios.

## Task evaluation

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

## Continuous Internal Assessment format (100 Marks)

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

## Section F

## Award of MS (Plastic 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.

## Section G: Log

## Book

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

## Section H

## Portfolio:

As per format approved by the university

# Section I

# Paper Scheme

## Intermediate Examination

Written:
70 % general Surgery and mandatory rotation
30 % from specialty oriented (Plastic Surgery)

| Sr No. | TOPIC | NUMBER OF MCQs | LEVEL | NUMBER OF SEQ |
|---|---|---|---|---|
| 1 | Basic Plastic Surgery Principles | 1 | C-1 | - |
| 2 | Skin grafts and Flaps | 1 | C-1 | - |
| 3 | Benign skin conditions and malignancies | 2 | C-1 | - |
| 4 | Congenital craniofacial defects | 5 | C-2 | 1 |
| 5 | Micro surgery principles | 2 | C-2 | - |
| 6 | Wound healing | 2 | C-2 | - |

| | | | | |
|---|---|---|---|---|
| 7 | Shock management | 1 | C-2 | - |
| 8 | Acute Burn Management | 2 | C-2 | - |
| 9 | Breast Tumors | 1 | C-3 | - |
| 10 | Electric burn management | 3 | C-2 | 1 |
| 11 | Compartment syndrome | 1 | C-2 | - |
| 12 | Head and Neck Tumors | 2 | C-2 | - |
| 13 | Acute Limb Trauma | 3 | C-2, C-3 | 1 |
| 14 | Gastrointestinal Obstruction | 2 | C-2 | - |
| 15 | Hepatobiliary system | 2 | C-2 | - |
| | Total | 30 | | 3 |

## TOACS/OSCE Stations Distribution:

Short case: 4

Surgery and mandatory rotation: 3

Plastic Surgery: Skin Malignancy, Ulcer Examination, Nerve Examination, Craniofacial clefts, Hand Trauma, Limb trauma

Long case: 1

Any one from following

Head and neck Tumors, Burn Contractures, Scalp defects, Facial Traumatic defects

## Final Examination

Written:

MCQ: 100

SEQ: 10

| Sr No. | TOPIC | NUMBER OF MCQs | LEVEL | NUMBER OF SEQ |
|---|---|---|---|---|
| 1 | Acute Burn Management | 1 | C-1 | - |
| 2 | Electric Burn and compartment syndrome | 2 | C-1 | - |
| 3 | Nerve Injuries | 4 | C-1 | - |
| 4 | Congenital craniofacial defects | 10 | C-1, C-2, C-3 | 1 |

| | | | | |
|---|---|---|---|---|
| 5 | Acute Limb Trauma and tendon Injuries | 9 | C-1, C-2, C-3 | 1 |
| 6 | Congenital Hand | 6 | C-1, C-2, C-3 | 1 |
| 7 | Facial trauma and reconstruction | 6 | C-1, C-2, C-3 | - |
| 8 | Head and neck Tumors and Reconstruction | 10 | C-1, C-2, C-3 | 1 |
| 9 | Body contouring | 6 | C-2, C-3 | 1 |
| 10 | Reduction Mammoplasty, Mastopexy, Breast Reconstruction, | 11 | C-2, C-3 | 1 |
| 11 | Rhinoplasty, Nasal Reconstruction | 5 | C-2, C-3 | 1 |
| 12 | Chemical peels, Fillers, Botox | 8 | C-2, C-3 | 1 |
| 13 | Facelift, Blepharoplasty | 7 | C-2, C-3 | 1 |
| 14 | Disorders of Sexual development | 4 | C-2, C-3 | - |

| | | | | |
|---|---|---|---|---|
| 15 | Perineal Reconstruction | 6 | C-1, C-2, C-3 | 1 |
| 16 | Lymphedema | 3 | C-2, C-3 | - |
| 17 | Miscellaneous | 2 | C-2, C-2 | |
| | Total | 100 | | 10 |

## TOACS/OSCE Stations Distribution:

Interactive station, static stations
Short case: 4

Long case: 1

Any one from following: Head and neck malignancies, Congenital Cleft lip, palate and VPI, Craniofacial Microsomia, Breast Reconstruction, Nasal Reconstruction, Lymphedema, Peripheral Nerve injuries, Tendon transfers. Post burn contractures

# Section J

## **Resources and references** (books and other resource material)

- Grabb and Smith's Plastic Surgery, Eighth Edition
- Peter C. Neligan Plastic Surgery, Fourth Edition
- Essentials of Plastic Surgery, Third Edition
- Reconstructive Surgery By Michael R. Zenn, Glyn Jones

# Section K

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