CURRICULUM/STATUTES & REGULATIONS
FOR
5 YEARS DEGREE PROGRAMME
IN
PAEDIATRIC SURGERY
(MS PAEDIATRIC SURGERY)

UNIVERSITY OF HEALTH SCIENCES, LAHORE

STATUTES

Nomenclature of the Proposed Course

The name of degree programme shall be MS Paediatric Surgery. This name is well recognized and established for the last many decades worldwide.

Course Title:

MS Paediatric Surgery

Training Centers

Departments of Paediatric Surgery (accredited by UHS) in affiliated institutes of University of Health Sciences Lahore.

Duration of Course

The duration of MS Paediatric 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 Paediatric Surgery Programme the resident will spend first 6 Months in the relevant Department of Paediatric 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 AS&RB of the university. At the end of 2nd Calendar year the candidate shall take up Intermediate Examination.

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

1) Clinical Training in Paediatric Surgery
2) Research and Thesis writing

The candidate will undergo clinical training in the discipline to achieve the educational objectives (knowledge & Skills) alongwith rotation in the relevant fields during the 4th & 5th years of the programme. 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 at the most twice a year, through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination.

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

i) Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical & Dental Council.

ii) 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 Hope Certificate from the concerned Medical Superintendent that the House Job shall be completed before the Interview.

iii) Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

iv) Pass certificate of GCAT/MS part I or equivalent.

v) A candidate who have passed FCPS/FRCS Paediatric surgery will be inducted directly to 3rd year but he/she has to carry out research and write thesis and appear in Final

Examination.

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 programmes including minor programmes (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 MD courses.
- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with UHS as per prescribed Registration Regulations.

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 Paediatric 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 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 programme in Paediatric 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 Paediatric Surgery training should enable a student for:

- 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
- 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 carry out procedures with due attention to safety of patient, self and others

- Critically analyze their own clinical performance for continuous improvement

- Design and implement effective management plans:
  - Recognize the clinical features, accurately diagnose and manage paediatric 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 paediatric age group and differentiate those amenable to surgical treatment
  - Effectively manage the care of patients with 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.

- 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
- 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
- Recognize the value of knowledge and research and its application to clinical practice:
    - Assume responsibility for self-directed learning
    - Critically appraise new trends in Paediatric Surgery
    - Facilitate the learning of others.
- Appreciate ethical issues associated with Paediatric 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.

- Professionalism by:
  - Employing a critically reflective approach to Paediatric Surgery
  - Adhering with current regulations concerning workplace harassment
  - Regularly carrying out self and peer reviewed audit
  - Acknowledging and have insight into their own limitations
  - Acknowledging and learning from mistakes
- 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.
- 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

- Health advocacy:
  - Promote health maintenance of patients
  - Advocate for appropriate health resource allocation
  - Promote health maintenance of colleagues and teacher

SPECIFIC LEARNING OUTCOMES

On completion of the training programme, Paediatric Surgical Trainees pursuing an academic pathway will be expected to have demonstrated competence in all aspects of the published syllabus. The specific training component would include the following areas:

1. Establishing clearly defined standards of knowledge and skills required to practice paediatric surgery at secondary and tertiary care level
2. Understand Basic Sciences relevant to child development and disease (including relevant genetics and embryology)
3. The symptom patterns, differential diagnosis, investigation and management of common paediatric surgical conditions related to;
    - Neonatal Surgery
    - Emergency Surgery
    - Central and peripheral nervous systems
    - Head and neck surgery
    - Thoracic surgery

- Gastrointestinal surgery
- Genitourinary surgery
- Endoscopic Surgery
- Traumatology
- Organ transplantation
- Paediatric Tumour Surgery etc.

4. Understanding key differences between adult and child in the management of surgical conditions.
5. Being able to diagnose common paediatric surgical conditions
6. The ability to construct a differential diagnosis, interpret investigations and construct a management plan for common conditions
7. Undergoing exposure and training in a range of common surgical procedures
8. Developing a number of generic and advanced operative skills specific to paediatric surgery

9. Proficiency in handling critical and intensive care surgical illness
10. Understand the indications, actions and monitoring of drugs used in the paediatric surgical diseases
11. Developing communication skills according to age
12. Specific ethical and legal issues affecting the practice of paediatric surgery (including issues of consent)
13. History taking relevant to specific age or developmental stage
14. The clinical skills with appropriate examination techniques for children of different ages related to paediatric surgery
15. Basic life support skills in paediatric practice

16. Recognize the value of screening programs and prenatal diagnosis
17. Appreciate the role of family education in paediatric surgical disorders
18. Understand the role of staff management and of referral in particularly complex paediatric surgical disorders
19. Acquire management skills in running a Paediatric Surgery Unit

REGULATIONS

Scheme of the Course

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

Course Structure	Components	Examination
At the End of 2nd year MS Paediatric Surgery Programme	• Principles of General Surgery • Relevant Basic Science (Anatomy, Physiology, Pharmacology & Pathology)	**Intermediate Examination** at the end of 2nd Year of M.S. Paediatric Surgery Programme Written MCQs = 300 Marks Clinical, TOACS/OSCE & ORAL = 200 Marks Total = 500 Marks
At the end of 5th year MS Paediatric Surgery Programme	**Clinical component** Training in Paediatric Surgery with rotations in the relevant fields. **Research component** Research work / Thesis writing must be completed and thesis be submitted atleast 6 months before the end of final year of the programme.	**Final Examination** at the end of 5th year of M.S. Paediatric Surgery Programme. Written = 500 Marks Clinical, TOACS/OSCE & ORAL = 500 Marks Contribution of CIS = 100 Marks Thesis Evaluation = 400 Marks **Total = 1500 Marks** Thesis evaluation and defense at the end of 5th year of the programme.

Intermediate Examinations M.S. Paediatric Surgery
(at the end of 2nd calendar year of the programme)

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

Eligibility Criteria:

The candidates appearing in Intermediate Examination of the Paediatric Surgery Programme are required:

a) To have submitted certificate of completion of mandatory workshops.
b) To have submitted certificate of completion of first two years of training from the supervisor/ supervisors of Rotation.
c) 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%.
d) 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 programme.

e) To have submitted evidence of payment of examination fee.

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.

At the end of 2nd year Calendar of the programme

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

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 50% marks in written, clinical, Toacs/OSCE & Oral and Practical components 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

At the end of 5th Calendar year of the Programme

Eligibility Criteria:

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

i) To have submitted the result of passing Intermediate Examination.

ii) To have submitted the certificate of completion of training, issued by the Supervisor which will be mandatory.

iii) To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.

iv) To have got the thesis accepted and will then be eligible to appear in Final Examination.

v) To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.

vi) To have submitted evidence of submission of examination fee.

Final Examination Schedule and Fee

a) Final examination will be held twice a year.

b) The candidates have to satisfy eligibility criteria before permission is granted to take the examination.

c) Examination fee will be determined and varied at periodic intervals 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 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 Paediatric Surgery course shall appear in Final (clinical) examination at the end of structured training programme (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
Total	**= 1500 Marks**

Written Papers:

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

Clinical, TOACS/OSCE & ORAL

Short Cases	= 200 Marks
Long Case	= 100 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks
Total	**= 500 Marks**

Declaration of Result

For the declaration of result

I. The candidate must get his/her Thesis accepted.
II. The candidate must have passed the final written examination with 50% marks and the clinical & oral examination securing 50% marks. The cumulative passing score from the written and clinical/ oral examination shall be 60%.
III. The MS degree shall be awarded after acceptance of thesis and success in the final examination.
IV. 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

1. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on university website.
2. 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.
3. Synopsis of research project shall be submitted by the end of the 2nd 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

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

Thesis Examination

a) The candidate will submit his/her thesis at least 06 months prior to completion of training.

b) 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.

c) 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.

d) The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.

e) 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.

f) The thesis will be evaluated by the examiners within a period of 06 weeks.

g) 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.

h) 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.

i) 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.

j) The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.

k) The thesis will be considered / accepted, if the cumulative score of all the examiners is 60%.

l) 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 Paediatric Surgery Degree

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

CONTENT OUTLINE

MS Paediatric Surgery

Basic sciences:
Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology, Biochemistry and Pharmacology relevant to surgical practice

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
  - -G.O. junction
  - -Pylorus
  - -Ileocaecal region
  - -Anorectum
- Defaecation and continence

HEPATOBILIARY 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 Paediatric Surgery

Basic Principles of Surgery

- 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 medico-legal 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

- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneal lavage
- Bleeding diathesis & corrective measures, e.g. warming, packing

- Clotting mechanism; Effect of surgery and trauma on coagulation
- Tests for thrombophilia and other disorders of coagulation
- Methods of investigation for suspected thromboembolic disease
- Anticoagulation, heparin and warfarin
- Role of V/Q scanning, CT angiography and thrombolysis
- Place of pulmonary embolectomy
- Awareness of symptoms and signs associated with pulmonary embolism and DVT
- Role of duplex scanning, venography and d-dimer measurement
- Initiate and monitor treatment

Diagnosis and Management of Common Surgical Conditions:

- Child with abdominal pain
- Vomiting child
- Trauma
- Groin conditions
  - Hernia
  - Hydrocoele
  - Penile inflammatory conditions
  - Undescended testis
  - Acute scrotum
- Abdominal wall pathologies
- Urological conditions
- Constipation
- Head / neck swellings
- Intussusception
- Abscess
- In growing toenail

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

- Elective Procedures
  - Inguinal hernia

- (not neo-natal)
  - Orchidopexy
  - Circumcision*

- Lymph node biopsy*
- Abdominal wall herniae
- Insertion of CV lines
- Management of in growing toenails*
- EUA rectum*
- Manual evacuation*
- Open rectal biopsy
- Excision of skin lesions*

- Emergency Procedures
  - Appendicectomy
  - Incision and drainage of abscess*
  - Pyloromyotomy
  - Operation for testicular torsion*
  - Insertion of pleural drain*
  - Insertion of suprapubic catheter*
  - Reduction of intussusception

MS PAEDIATRIC SURGERY

Clinical Component

Advanced Professional Education in Paediatric Surgery

The aim of this stage is to allow the trainee to continue to develop the advanced skills knowledge and attitude required to practise as consultant Paediatric Surgeon in Pakistan and Abroad.

Trainee will build on the basic skills and competences achieved in the initial stage of the programme, gaining exposure to the more specialised areas of practice.

The goals as outlined in initial stages remain pertinent, as it is expected that the trainees will continue to build on their clinical experience and move beyond competent practice to the level of an advanced practitioner, in many of the areas.

The different sections will contain a mixture of information on relevant conditions, symptom patterns and associated surgical operations. This is in an attempt to represent the variety of clinical practice. Overall these goals

outlined are simply guides to progress and should be used by trainees, trainers and Programme Directors to help plan rotational placements to ensure a full breadth; of training.

The difference surgical sections are:

- Emergency surgery
- Gastrointestinal surgery
- Neonatal surgery
- Urology
- Thoracic surgery
- Orthopaedic Surgery
- Neurosurgery
- Surgical Oncology
- Surgical Endocrinology
- Research and Audit
- Teaching and Training

By the end of the final stage of training trainees including those who are following an academic pathway will have:

- Achieved the level of an advanced practitioner in the management of the common surgical problems of childhood
- Acquired the skills to practice with integrity, respect and compassion
- Gained sufficient theoretical knowledge and practical experience to be able to enter for the examination in paediatric surgery as set by the University of Health Sciences in Paediatric Surgery.
- Increasing exposure to the more specialised areas of paediatric surgery to include clinical presentation, operative and non-operative management of cases within the different areas.

- Competence in further range of operations common to paediatric practice
- Developed skills and experience in areas of more specialised practice – with a view to developing a sub-specialty interest if appropriate.
- Achieved the level of advanced practitioner in operations common to Paediatric practice, and be developing competence in procedures appropriate to sub-specialty training.

The operative skills outlined here are those relevant to this stage of surgical training. Many are related to the conditions outlined in the specialty modules.

Again the curriculum is there to act as a guide to a minimum level of competence to be achieved by the end of 5th year. The operations detailed here are those it is reasonable to expect the trainee to be able to perform either independently or with consultant assistance available but not necessarily at the operating table.

Although this list is not exhaustive it gives an indication of those procedures that it is reasonable to expect a trainee by the end of 4th year to have been exposed to.

Key to competency levels in clinical skills:

1. Observer status. 1
2. Assistant status. 2
3. Performed under supervision. 3

4. Performed independently. 4

A candidate is expected to attain the laid down level of competence for the following procedures by the end of each year as given below:II. Procedures

		Third Year								Total No. of Cases
		3 Months		6 Months		9 Months		12 Months		
		Level	Cases	Level	Cases	Level	Cases	Level	Cases	
S. No.	**A) Patient Management**									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	3	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	3	12	4	16	4	12	4	12	48
3.	Requesting Investigations	3	12	4	12	4	12	3	12	48
4.	Interpreting Results	2	12	3	12	3	12	3	12	48
5.	Planning Management	1	12	2	12	3	12	3	12	48
6.	Maintaining Follow up	3	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	3	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g Withholding and Withdrawing	1	2	2	2	2	2	3	2	48

	Treatment)									
9.	Declaring Conflict of Interest (including relationship with pharmaceutical industry)	2	2	3	2	4	2	4	2	8
10.	Antenatal counseling for congenital anomalies	1	2	2	2	3	2	3	2	8
B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	2	1	2	1	2	1	2	1	4
12.	Excision of Branchial cyst and sinus	2	1	2	1	2	1	2	1	4
13.	Release of Torticollis	2	1	2	1	2	1	2	1	4
14.	Prearicular sinus and cyst excision	2	1	2	1	2	1	2	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc)	-	-	-	-	-	-	2	1	1
16.	Tracheostomy	-	-	-	-	2	1	2	1	2
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	2	1	2	1	2	1	2	1	3
18.	Repair of Cleft Palate	2	1	2	1	2	1	2	1	3
19.	Skin Grafting /Flaps	2	1	2	1	2	1	2	1	3
20.	Burns Contracture Release	2	1	2	1	2	1	2	1	3

21.	Burns Wound Debridement	2	2	2	2 [17]	3	2	4	2	8
D) Thoracic Surgery Procedures										
22.	Repair of Oesophageal Atresia (with or without Tracheoesophageal fistula) Inculding oesophagostomy	2	1	2	1	2	1	2	1	4
23.	Repair of Diaphrgamatic Hernia	-	-	-	-	2	1	2	1	2
24.	Plication of Eventration of Diaphragm	-	-	-	-	2	1	2	1	2
25.	Pulmonary Lobectomy	-	-	-	-	2	1	2	1	2
26.	Excision of Mediastinal Masses	-	-	-	-	2	1	2	1	2
27.	Decortication of Empyema	-	-	-	-	2	1	2	1	2
28.	Oesophageal Subsitution	-	-	-	-	-	-	2	1	1
29.	Tube Thoracostomy	2	1	2	1	3	1	5	1	6
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	-	-	2	1	2	1	2	1	3
31.	Ileostomy	-	-	2	1	2	1	2	1	3
32.	Colostomy	2	2	2	2	2	2	2	2	8
33.	Colostomy closure	2	1	2	1	2	1	2	1	4
34.	Laparotomy for Peritonitis	2	4	2	4	2	4	2	4	16

	Intestinal perforation Gangrene / volvulous Gastrointestinal Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	2	1	2	1	2	1	2	1	4
36.	Appendectomy	2	2	2	2	3	1	3	1	6
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	2	1	2	1	2	1	2	1	4
38.	Operation for Hirschprung's Disease Rectal biopsy Definitive procedure	2	1	2	1	2	1	2	1	4
39.	Splenectomy	-	-	-	-	-	-	2	1	1

40.	Choledochal cyst	-	-	-	-	2	1	2	1	2
41.	Cholecystectomy	-	-	-	-	2	1	2	1	2
42.	Portoenterostomy	-	-	-	-	2	1	2	1	2
43.	Hepatic cyst / abscesses etc	-	-	-	-	2	1	2	1	2
44.	Antireflux procedure (for GERD & Achalasia Cardia)	-	-	-	-	2	1	2	1	2
45.	Surgery on Pancreas (pseudocyst etc) Adrental (cyst / adenoma excision)	-	-	-	-	2	1	2	1	2
46.	Rectal Polypectomy	2	2	3	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	2	2	3	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	2	1	2	1	2	1	2	1	4
49.	Umbilical anomalies repair	2	2	2	2	3	1	3	1	6
50.	Inguinal Herniotomy	2	2	2	2	3	1	3	1	6
51.	Ligation of PPV	2	2	2	2	3	1	3	1	6
G) Genitourinary system										
52.	Orchiopexy	2	2	2	2	3	1	3	1	6
53.	Torsion Testis / Appendages	-	-	-	-	2	1	2	1	2
54.	Ovarian cyst extension	-	-	-	-	2	1	2	1	2

55.	Repair of Hypospadias (single or multi stages procedures including crippled hypospadias repair)	2	2	2	2	2	2	2	2	8
56.	Repair of Epispadias	-	-	-	-	2	1	2	1	2
57.	Repair of Ectopia vesicae	-	-	-	-	2	1	2	1	2
58.	Ureter Re implantation	-	-	-	-	-	-	2	1	2
59.	Vesicostomy	-	-	-	-	2	1	2	1	2
60.	Suprapubic cystostomy	2	1	2	1	2	1	2	1	4
61.	Cystolithotomy	2	1	2	1	2	1	2	1	4
62.	Pyelolithotomy	-	-	2	1	2	1	2	1	3
63.	Ureterolithotomy	-	-	-	-	2	1	2	1	2
64.	Pyeloplasty	-	-	2	1	2	1	2	1	2
65.	Nephrectomy	-	-	-	-	2	1	2	1	2
66.	Circumcission	2	2	2	2	3	2	3	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	-	-	-	-	2	1	2	1	2
H) Endoscopic Procedures										
68.	Bronchoscopy	2	1	2	1	2	1	2	1	4
69.	Oesophagoscopy & Dilatation	2	1	2	1	2	1	2	1	4
70.	Sigmoidoscopy / colonoscopy	2	1	2	1	2	1	2	1	4
71.	Gastrodudenoscopy	2	1	2	1	2	1	2	1	4

72.	Cystoscopy including Fulguration of PUV	2	1	2	1	2	1	2	1	4
I)Surgical Oncology										
73.	Wilim's Tumor	2	1	2	1	2	1	2	1	4
74.	Sacrococcygeal Teratoma	2	1	2	1	2	1	2	1	4
75.	Neuroblastoma	2	1	2	1	2	1	2	1	4
76.	Gonadal tumors	2	1	2	1	2	1	2	1	4
77.	Rhabdomyosarcoma	3	1	3	1	4	1	4	1	4
78.	Lymphomas	2	1	2	1	2	1	2	1	4
79.	Hepatoblastoma	-	-	-	-	-	-	2	1	1
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	2	2	2	2	2	2	2	2	8
81.	Laparotomy for Penetrating trauma Blunt Trauma	2	1	2	1	2	1	2	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	2	2	2	2	2	2	2	2	8
83.	Thoracoscopy	-	-	-	-	2	1	2	1	2
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele, Encephalocele)	2	1	2	1	2	1	2	1	4
85.	VP shunt for	2	1	2	1	2	1	2	1	4

	Hydrocephalus									
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	2	1	2	1	2	1	2	1	4
87.	Arthorotomy / Drainage	2	1	2	1	2	1	2	1	4
88.	Osteomyelitis drainage of pus	2	1	2	1	2	1	2	1	4
89.	Hip spica application	2	1	2	1	2	1	2	1	2
90.	Application of POP cast for Fractures	2	2	2	2	2	2	2	2	8
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	2	1	2	1	3	1	3	1	4
92.	Drainage of deep abscesses	3	2	3	2	4	2	4	2	8
93.	Lymph node biopsy	2	2	3	2	4	2	4	2	8
94.	Cystic Hygroma (excision/sclerotherapy)	2	1	2	1	2	1	2	1	4
95.	Haemangioma (Sclerotherapy/Excision)	2	1	2	1	2	1	2	1	4
96.	Central line insertion	2	1	2	1	2	1	2	1	4

MS Paediatric Surgery

Competency Chart Year 4

	Fourth Year								**Total**
	15 Months		**18 Months**		**21 Months**		**24 Months**		**No. of**
	Level	**Cases**	**Level**	**Cases**	**Level**	**Cases**	**Level**	**Cases**	**Cases**

S. No.	A) Patient Management									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	4	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	4	12	4	12	4	12	4	12	48
3.	Requesting Investigations	4	12	4	12	4	12	4	12	48
4.	Interpreting Results	4	12	4	12	4	12	4	12	48
5.	Planning Management	4	12	4	12	4	12	4	12	48
6.	Maintaining Follow up	4	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	4	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g Withholding and Withdrawing Treatment)	4	2	4	2	4	2	4	2	8
9.	Declaring Conflict of Interest (including relationship with pharmaceutical industry)	4	2	4	2	4	2	4	2	8
10.	Antenatal counseling for congenital anomalies	4	2	4	2	4	2	4	2	8

B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	2	1	2	1	3	1	3	1	4
12.	Excision of Branchial cyst and sinus	2	1	2	1	3	1	3	1	4
13.	Release of Torticollis	2	1	2	1	3	1	3	1	4
14.	Prearicular sinus and cyst excision	2	1	2	1	3	1	3	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc)	2	1	2	1	3	1	3	1	4
16.	Tracheostomy	2	1	2	1	3	1	3	1	4
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	2	1	2	1	2	1	3	1	4
18.	Repair of Cleft Palate	2	1	2	1	2	1	3	1	4
19.	Skin Grafting /Flaps	2	1	2	1	2	1	3	1	4
20.	Burns Contracture Release	2	1	2	1	2	1	3	1	4
21.	Burns Wound Debridement	3	2	4	2	4	2	4	2	8
D) Thoracic Surgery Procedures										
22.	Repair of Oesophageal Atresia (with or without Tracheoesophageal fistula) Inculding	2	1	2	1	2	1	3	1	4

	oesophagostomy									
23.	Repair of Diaphrgamatic Hernia	2	1	2	1	2	1	3	1	4
24.	Plication of Eventration of Diaphragm	2	1	2	1	2	1	3	1	4
25.	Pulmonary Lobectomy	2	1	2	1	2	1	2	1	4
26.	Excision of Mediastinal Masses	2	1	2	1	2	1	3	1	4
27.	Decortication of Empyema	2	1	2	1	2	1	3	1	4
28.	Oesophageal Subsitution	2	1	2	1	2	1	2	1	4
29.	Tube Thoracostomy	3	2	4	2	4	2	4	2	8
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	2	1	3	1	3	1	4	1	4
31.	Ileostomy	2	1	3	1	3	1	4	1	4
32.	Colostomy	3	1	3	1	4	1	4	1	4
33.	Colostomy closure	2	1	3	1	3	1	4	1	4
34.	Laparotomy for Peritonitis Intestinal perforation Gangrene / volvulous Gastrointestinal	3	3	3	3	4	2	4	2	10

	Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	2	1	3	1	3	1	3	1	4
36.	Appendectomy	3	2	4	2	4	2	4	2	8
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	2	2	3	1	3	1	3	1	5
38.	Operation for Hirschprung's Disease Rectal biopsy Definitive procedure	2	2	3	1	3	1	3	1	5
39.	Splenectomy	-	-	-	-	2	1	2	1	2
40.	Choledochal cyst	2	1	2	1	2	1	3	1	4
41.	Cholecystectomy	2	1	3	1	3	1	3	1	4
42.	Portoenterostomy	2	1	2	1	2	1	3	1	4

43.	Hepatic cyst / abscesses etc	2	1	2	1	2	1	3	1	4
44.	Antireflux procedure (for GERD & Achalasia Cardia)	2	1	2	1	2	1	3	1	4
45.	Surgery on Pancreas (pseudocyst etc) Adrental (cyst / adenoma excision)	2	1	2	1	2	1	3	1	4
46.	Rectal Polypectomy	4	2	4	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	4	2	4	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	2	1	3	1	3	1	4	1	4
49.	Umbilical anomalies repair	3	1	3	1	4	1	4	1	4
50.	Inguinal Herniotomy	3	2	3	2	4	2	4	2	8
51.	Ligation of PPV	3	2	3	2	4	2	4	2	8
G) Genitourinary system										
52.	Orchiopexy	3	2	3	2	4	2	4	2	8
53.	Torsion Testis / Appendages	3	1	3	1	4	1	4	1	4
54.	Ovarian cyst extension	2	1	3	1	3	1	4	1	4
55.	Repair of Hypospadias	2	1	3	1	3	1	4	1	4

	(single or multi stages procedures including crippled hypospadias repair)									
56.	Repair of Epispadias	2	1	2	1	3	1	3	1	4
57.	Repair of Ectopia vesicae	2	1	2	1	2	1	3	1	4
58.	Ureter Re implantation	2	1	2	1	2	1	3	1	4
59.	Vesicostomy	3	1	3	1	4	1	4	1	4
60.	Suprapubic cystostomy	3	1	3	1	4	1	4	1	4
61.	Cystolithotomy	3	1	3	1	4	1	4	1	4
62.	Pyelolithotomy	2	1	3	1	3	1	3	1	4
63.	Ureterolithotomy	2	1	3	1	3	1	3	1	4
64.	Pyeloplasty	2	1	3	1	3	1	3	1	4
65.	Nephrectomy	2	1	3	1	3	1	3	1	4
66.	Circumcission	4	2	4	2	4	2	4	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	2	1	2	1	3	1	3	1	4
H) Endoscopic Procedures										
68.	Bronchoscopy	3	1	3	1	3	1	4	1	4
69.	Oesophagoscopy & Dilatation	3	1	3	1	3	1	4	1	4
70.	Sigmoidoscopy / colonoscopy	3	1	3	1	3	1	4	1	4

71.	Gastrodudenoscopy	3	1	3	1	3	1	4	1	4
72.	Cystoscopy including Fulguration of PUV	3	1	3	1	3	1	4	1	4
I)Surgical Oncology										
73.	Wilim's Tumor	2	1	2	1	3	1	3	1	4
74.	Sacrococcygeal Teratoma	2	1	2	1	3	1	3	1	4
75.	Neuroblastoma	2	1	2	1	3	1	3	1	4
76.	Gonadal tumors	2	1	2	1	3	1	3	1	4
77.	Rhabdomyosarcoma	2	1	2	1	3	1	3	1	4
78.	Lymphomas	2	1	2	1	3	1	3	1	4
79.	Hepatoblastoma	2	1	2	1	2	1	2	1	4
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	3	2	4	2	4	2	4	2	8
81.	Laparotomy for Penetrating trauma & Blunt Trauma	2	1	2	1	3	1	3	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	2	1	2	1	3	1	3	1	4
83.	Thoracoscopy	2	1	2	1	3	1	3	1	4
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele,	3	1	3	1	3	1	3	1	4

	Encephalocele)									
85.	VP shunt for Hydrocephalus	3	1	3	1	3	1	3	1	4
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	3	1	3	1	3	1	3	1	4
87.	Arthorotomy / Drainage	3	1	3	1	3	1	3	1	4
88.	Osteomyelitis drainage of pus	3	1	3	1	3	1	3	1	4
89.	Hip spica application	3	1	3	1	4	1	4	1	4
90.	Application of POP cast for Fractures	3	1	3	1	4	1	4	1	4
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	3	2	4	2	4	2	4	2	8
92.	Drainage of deep abscesses	4	2	4	2	4	2	4	2	8
93.	Lymph node biopsy	4	2	4	2	4	2	4	2	8
	Cystic Hygroma (excision/sclerotherapy)	3	2	4	2	4	2	4	2	8
94.	Haemangioma (Sclerotherapy/Excision)	3	2	4	2	4	2	4	2	8
95.	Central line insertion	3	2	4	2	4	2	4	2	8

		Fifth Year								Total No. of Cases
		27 Months		30 Months		33 Months		36 Months		
		Level	Cases	Level	Cases	Level	Cases	Level	Cases	
S. No.	**A) Patient Management**									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	4	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	4	12	4	12	4	12	4	12	48
3.	Requesting Investigations	4	12	4	12	4	12	4	12	48
4.	Interpreting Results	4	12	4	12	4	12	4	12	48
5.	Planning Management	4	12	4	12	4	12	4	12	48
6.	Maintaining Follow up	4	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	4	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g Withholding and Withdrawing Treatment)	4	4	4	4	4	4	4	4	16
9.	Declaring Conflict of Interest (including	4	4	4	4	4	4	4	4	16

	relationship with pharmaceutical industry)									
10.	Antenatal counseling for congenital anomalies	4	4	4	4	4	4	4	4	16
B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	4	1	4	1	4	1	4	1	4
12.	Excision of Branchial cyst and sinus	4	1	4	1	4	1	4	1	4
13.	Release of Torticollis	4	1	4	1	4	1	4	1	4
14.	Prearicular sinus and cyst excision	4	1	4	1	4	1	4	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc)	3	1	3	1	3	1	4	1	4
16.	Tracheostomy	4	1	4	1	4	1	4	1	4
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	3	1	3	1	4	1	4	1	4
18.	Repair of Cleft Palate	3	1	3	1	4	1	4	1	4
19.	Skin Grafting /Flaps	3	1	3	1	4	1	4	1	4
20.	Burns Contracture Release	3	1	3	1	4	1	4	1	4
21.	Burns Wound Debridement	4	4	4	4	4	4	4	4	16
D) Thoracic Surgery Procedures										

22.	Repair of Oesophageal Atresia (with or without Tracheoesophageal fistula) Inculding oesophagostomy	3	1	3	1	4	1	4	1	4
23.	Repair of Diaphrgamatic Hernia	3	1	3	1	4	1	4	1	4
24.	Plication of Eventration of Diaphragm	3	1	3	1	4	1	4	1	4
25.	Pulmonary Lobectomy	3	1	3	1	3	1	4	1	4
26.	Excision of Mediastinal Masses	3	1	3	1	3	1	4	1	4
27.	Decortication of Empyema	3	1	3	1	4	1	4	1	4
28.	Oesophageal Subsitution	2	1	2	1	2	1	3	1	4
29.	Tube Thoracostomy	4	4	4	4	4	4	4	4	16
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	3	1	4	1	4	1	4	1	4
31.	Ileostomy	4	1	4	1	4	1	4	1	8
32.	Colostomy	4	2	4	2	4	3	4	3	10
33.	Colostomy closure	3	2	4	2	4	2	4	2	8
34.	Laparotomy for Peritonitis Intestinal perforation	4	4	4	4	4	4	4	4	16

	Gangrene / volvulous Gastrointestinal Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	3	2	4	1	4	1	4	1	5
36.	Appendectomy	4	2	4	2	4	2	4	2	8
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	3	2	4	1	4	1	4	1	5
38.	Operation for Hirschprung's Disease Rectal biopsy Definitive procedure	3	1	3	1	4	1	4	1	4
39.	Splenectomy	3	1	3	1	4	1	4	1	4
40.	Choledochal cyst	2	1	3	1	3	1	4	1	4
41.	Cholecystectomy	3	1	4	1	4	1	4	1	4
42.	Portoenterostomy	2	1	3	1	3	1	4	1	4
43.	Hepatic cyst / abscesses	3	1	4	1	4	1	4	1	4

	etc									
44.	Antireflux procedure (for GERD & Achalasia Cardia)	3	1	4	1	4	1	4	1	4
45.	Surgery on Pancreas (pseudocyst etc) Adrental (cyst / adenoma excision)	3	1	4	1	4	1	4	1	4
46.	Rectal Polypectomy	4	2	4	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	4	2	4	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	3	1	4	1	4	1	4	1	4
49.	Umbilical anomalies repair	4	1	4	1	4	1	4	1	4
50.	Inguinal Herniotomy	4	2	4	2	4	2	4	2	8
51.	Ligation of PPV	4	2	4	2	4	2	4	2	8
G) Genitourinary system										
52.	Orchiopexy	4	2	4	2	4	2	4	2	8
53.	Torsion Testis / Appendages	4	1	4	1	4	1	4	1	4
54.	Ovarian cyst extension	3	1	4	1	4	1	4	1	4
55.	Repair of Hypospadias (single or multi stages	3	1	4	1	4	1	4	1	4

	procedures including crippled hypospadias repair)									
56.	Repair of Epispadias	3	1	3	1	3	1	4	1	4
57.	Repair of Ectopia vesicae									
58.	Ureter Re implantation	3	1	3	1	3	1	4	1	4
59.	Vesicostomy	3	1	3	1	3	1	4	1	4
60.	Suprapubic cystostomy	4	2	4	2	4	2	4	2	8
61.	Cystolithotomy	4	2	4	2	4	2	4	2	8
62.	Pyelolithotomy	3	1	3	1	4	1	4	1	4
63.	Ureterolithotomy	3	1	3	1	4	1	4	1	4
64.	Pyeloplasty	3	1	3	1	4	1	4	1	4
65.	Nephrectomy	3	1	3	1	4	1	4	1	4
66.	Circumcission	4	2	4	2	4	2	4	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	3	1	3	1	4	1	4	1	4
H) Endoscopic Procedures										
68.	Bronchoscopy	3	2	4	2	4	2	4	2	8
69.	Oesophagoscopy & Dilatation	3	2	4	2	4	2	4	2	8
70.	Sigmoidoscopy / colonoscopy	3	2	4	2	4	2	4	2	8
71.	Gastrodudenoscopy	3	2	4	2	4	2	4	2	8
72.	Cystoscopy including	3	2	4	1	4	1	4	1	5

	Fulguration of PUV									
I)Surgical Oncology										
73.	Wilim's Tumor	3	1	4	1	4	1	4	1	4
74.	Sacrococcygeal Teratoma	3	1	4	1	4	1	4	1	4
75.	Neuroblastoma	3	1	4	1	4	1	4	1	4
76.	Gonadal tumors	3	1	4	1	4	1	4	1	4
77.	Rhabdomyosarcoma	3	1	3	1	4	1	4	1	4
78.	Lymphomas	3	1	4	1	4	1	4	1	4
79.	Hepatoblastoma	2	1	2	1	3	1	3	1	4
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	4	3	4	3	4	3	4	3	12
81.	Laparotomy for Penetrating trauma & Blunt Trauma	4	1	4	1	4	1	4	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	3	1	4	1	4	1	4	1	4
83.	Thoracoscopy	3	1	3	1	4	1	4	1	4
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele, Encephalocele)	4	1	4	1	4	4	4	1	4
85.	VP shunt for	4	1	4	1	4	4	4	1	4

	Hydrocephalus									
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	4	1	4	1	4	4	4	1	4
87.	Arthorotomy / Drainage	4	1	4	1	4	4	4	1	4
88.	Osteomyelitis drainage of pus	4	1	4	1	4	4	4	1	4
89.	Hip spica application	4	1	4	1	4	1	4	1	4
90.	Application of POP cast for Fractures	4	2	4	2	4	2	4	2	8
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	4	2	4	2	4	2	4	2	8
92.	Drainage of deep abscesses	4	2	4	2	4	2	4	2	8
93.	Lymph node biopsy	4	2	4	2	4	2	4	2	8
94.	Cystic Hygroma (excision/sclerotherapy)	4	2	4	2	4	2	4	2	8
95.	Haemangioma (Sclerotherapy/Excision)	4	2	4	2	4	2	4	2	8
96.	Central line insertion									

ROTATIONS:

2nd Year; Two months in paediatric medicine & two month in pathology rotations are mandatory.

3rd, 4th & 5th Years;

For 3 months each in any 3 specialty of the following:-

1. Paediatric Orthopedic Surgery
2. Paediatric Urology
3. Paediatric Neuro Surgery
4. Paediatric Plastic Surgery
5. Paediatric Cardiothoracic Surgery

If in any institution these specialty do not exist then the candidate can be rotated to adult counterpart or the supervisor will certify that these procedures are adequately performed in the department.

Thesis Component

(Fifth year of MS Paediatric Surgery Programme)

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:

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis
4. Research ethics and honesty
5. 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:
1. Become familiar with the pertinent Rules and Regulations of the University of Health Sciences Lahore 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"
2. Read the "Guide for the Care and Use of Laboratory Animals"
3. View the videotape of the symposium on Humane Animal Care

Research involving Radioactivity
Each resident participating in research involving radioactive materials is required to
1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/her.

METHODS OF INSTRUCTION/COURSE CONDUCTION

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

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, Operation Theatres, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.

9. Attend sessions of genetic counseling
10. Self study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. 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 Paediatric 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 Paediatric 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:

1. 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 (mentioned in the Log Book).
2. 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.
3. 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.
4. 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.

5. 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 and becoming

   familiar with Project Professionalism Manual Residents should have instruction and experience with patient counseling skills and community education.
6. This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
7. Residents should have experience in the performance of Paediatric Surgery related clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards
8. Each resident will manage the essential paediatric surgical cases and observe and participate in each of the procedures, preferably done on patients under supervision initially and then independently

3. Annual Grand Meeting

Once a year all residents enrolled for MD Paediatric Surgery should be invited to the annual meeting at UHS Lahore.
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 shall be entered in the log book as per format (pg.29-34):

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					

Cases 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:

a. Punctuality
b. Ward work
c. Monthly assessment (written tests to indicate particular areas of weaknesses)
d. 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 programme to empirically evaluate cognitive, psychomotor and affective domains in order to award diplomas for successful completion of courses.

Intermediate Examination MS Paediatric Surgery
Total Marks: 500

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

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

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
Toacs/OSCE & Oral	= 50 Marks
Total	**= 200 Marks**

Final Examination MS Paediatric Surgery
Total Marks: 1500

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

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

Topics included in paper 1

1. Neonatal Surgery (20 MCQs)
2. Emergency Surgery (20 MCQs)
3. Traumatology (15 MCQs)
4. Anaesthesiologic techniques (10 MCQs)
5. Central and peripheral nervous systems (15 MCQs)
6. Head and neck surgery (20 MCQs)

Topics included in paper 2

1. Gastrointestinal surgery (25 MCQs)
2. Thoracic surgery (20 MCQs)

3. Genitourinary surgery (20 MCQs)
4. Endoscopic Surgery (10 MCQs)
5. Organ transplantation (05 MCQs)
6. Paediatric Tumour Surgery etc (20 MCQs)

Components of Final Clinical Examination

Theory

Paper I	**250 Marks**	**3 Hours**
5 SEQs	50 Marks	
100 MCQs	200 Marks	
Paper II	**250 Marks**	**3 Hours**
5 SEQs	50 Marks	
100 MCQs	200 Marks	

Only those 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 Paediatric Surgery

Thesis Examination
Total Marks: 400

All candidates admitted in MS Paediatric Surgery courses shall appear in thesis examination at the end of 5th year of the MS programme. The examination shall include thesis evaluation with defense.

RECOMMENDED BOOKS

- Grays Anatomy. 41st Ed. 2016. Standring S.
- Textbook of Medical Physiology 13th Ed. 2015 Guyton
- Harper's Biochemistry 30th Ed 2016.
- Katzung's Basic and Clinical Pharmacology 13th Ed 2015
- Pathologic Basis of Disease. Robbins & Cotran. 9th Ed 2015
- Medical Embryology Langman's 13th Ed. 2015
- Pediatric Surgery 7th Edition. Grosfeld, O'Neill, Coran, Fonkalsrud. 2006
- Newborn Surgery 4th Edition. P Puri. 2017
- Operative Surgery- Paediatric Surgery. Rob & Smith 5th Ed.
- Pediatric Surgery. Puri P, Höllwarth. 2006
- Pediatric Surgery 6th Edition. Ashcraft K
- Principles and Practice of Pediatric Surgery. Oldham KT 2006.
- Paediatric Surgery 2nd Ed. Burge DM 2006.

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**
   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.
4. An appropriate fee for each workshop will be charged.
5. Each workshop will be of 02 - 05 days duration.
6. Certificates of attendance will be issued upon satisfactory completion of workshops.

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 case based discussions and presentations to the supervisors /

c. The candidate will be trained in designing research project, data collection, data analysis and presentation of results by the supervisor.

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.

pecialty 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.

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 sub

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".**

pervisor'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.

APPENDIX " G "

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

Supervisor's Evaluation

PROFORMA FOR CONTINUOUS INTERNAL ASSESSMENTS

1.	**Generic Competencies**		
	(Please score from 1 – 100. 75% shall be the pass marks)	**Component Score**	**Score achieved**
	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	
2.	**Specialty specific competencies**		
	Please score from 1 – 100. 75% shall be the pass marks		**Score achieved**
	Operative Skills / Procedural Skills		
3.	**Multisource Feedback Evaluation**(Please score from 1 – 100. 75% shall be the pass marks)		
4.	**Candidates Training Portfolio** (Please score from 1 – 100.75% shall be the pass marks)		
	(Please score from 1 – 100. 75% shall be the pass marks)	**Component Score**	**Score achieved**
	i. Log book of operations and procedures	25	
	ii. Record of participation and presentation in academic activities	25	
	iii. Record of publications	25	
	iv. Record of results of assessments and examinations	25	