THESIS

All postgraduates are required to carry out a research project under the guidance of faculty of the department. They are encouraged to select the project of their choice. They must submit the protocol within four months of joining the MS degree course.

CONTENT OF TRAINING

General Objectives of Training

Trainees should develop:-

1. Clinical and operative competence in both emergency and elective general surgery. Additionally they require knowledge and some experience across a wide range of surgery to ensure appropriate referral.
2. The competence to be responsible for both the emergency admissions in general surgery and elective referrals.
3. Appropriate skills in:-
   (a) Basic Gastro-intestinal endoscopy
   (b) Endoscopic surgery
4. A knowledge of the basic sciences related to general surgery including relevant specialist applied anatomy.
5. The ability to teach medical students
6. The ability to work as a member of a clinical team, bearing in mind the needs of the service and the hospital.
7. An understanding of the particular requirements of day case surgery.
8. A knowledge of palliative care.
9. A knowledge of subjects such as medical ethics, health economics, medico-legal matters, risk management, medical statistics, information technology and health service management.
10. A knowledge and experience of clinical audit.
11. An understanding of research methods.

Syllabus

The following pages comprise schedules of knowledge and operative skills, which provide a syllabus for training in general surgery and its sub-specialties. The knowledge required includes the basic science relevant to each topic. There is no intention to limit knowledge and operative experience. Trainees, as part of their general surgical training, must acquire competence in the scheduled operations but will also have experience of other procedures from the sub-specialty departments.

Knowledge: The Postgraduates are required to acquire sound knowledge of following topics. The list includes topics found in most standard surgical textbooks. The PG's should also be familiar with recent advances and current controversies.

1. **Applied Basic Sciences** include applied anatomy, physiology, biochemistry, microbiology and pathology.
2. **General Surgical Topics** include the following:

- History of Surgery
- Fluids and Electrolyte balance/ Acid – Base metabolism
- Wound Healing and Wound Management
- Pathophysiology and Management of Shock
- Principles of Operative Surgery: Asepsis, Sterilization and Antiseptics
- Surgical Infections and Antibiotics
- Nutrition and Metabolism
- Principles of Burn Management
- Principles of Oncology
- Principles of Laparoscopy and Endoscopy
- Haemostasis, Blood Transfusion
- Trauma: Assessment of polytrauma, triage, basic and advanced trauma
- Basic Principles of Anaesthesia
- Informed Consent and Medicolegal Issues
- Organ Transplantation
- Molecular Biology and Genetics
- Hernias: Types of hernias, repair techniques
- Breast Diseases: Benign breast disorders, investigations, screening, genetics, Breast Cancer
- Thyroid Disorders: Solitary nodule, investigations, multinodular goitre, Graves disease, malignancies

PERI-OPERATIVE MANAGEMENT 1

Pre-operative Management

- Assessment of fitness for anaesthesia and surgery.
- Tests of respiratory, cardiac and renal function.
- Management of associated medical conditions, eg: diabetes; respiratory disease;
- cardiovascular disease; malnutrition; anaemia; steroid, anticoagulant,
- immunosuppressant and other drug therapy.

Infection

- Pathophysiology of the body's response to infection.
- The sources of surgical infection - prevention and control.
- Surgically important micro-organisms.
- Principles of asepsis and antisepsis.
- Surgical sepsis and its prevention.
- Aseptic techniques.
- Skin preparation.

- Antibiotic prophylaxis.
- Sterilisation.

Investigative and Operative Procedures

- Excision of cysts and benign tumours of skin and subcutaneous tissue.
- Principles of techniques of biopsy.
- Suture and ligature materials.
- Drainage of superficial abscesses.
- Basic principles of anastomosis.

Anaesthesia

- Principles of anaesthesia.
- Pre-medication and sedation.
- Local and regional anaesthesia.
- Care and monitoring of the anaesthetised patient.

Theatre Problems

- Surgical technique and technology.
- Diathermy - principles and precautions.
- Lasers - principles and precautions.
- Explosion hazards relating to general anaesthesia and endoscopic surgery.
- Tourniquets - uses and precautions.
- Prevention of nerve and other injuries in the anaesthetised patient.
- Surgery in hepatitis and HIV carriers (special precautions).
- Disorders of coagulation and haemostasis (prophylaxis of thromboembolic disease).

PERI-OPERATIVE MANAGEMENT 2

Skin and Wounds

- Pathophysiology of wound healing.
- Classification of surgical wounds.
- Principles of wound healing.
- Incisions and their closure.
- Suture and ligature materials.
- Scars and contracture.
- Wound dehiscence.
- Dressings.

Fluid Balance

- Assessment and maintenance of fluid and electrolyte balance.
- Techniques of venous access.

- Nutritional support - indications, techniques, total parenteral nutrition.

Blood

- Disorders of coagulation and haemostasis.
- Blood transfusion - indications, hazards, complications, plasma substitutes.
- Haemolytic disorders of surgical importance.
- Haemorrhagic disorders; disorders of coagulation.

Post-operative Complications

- Post-operative complications - prevention, monitoring, recognition, management.
- Ventilatory support - indications.

Post-operative Sequelae

- Pain control.
- Immune response to trauma, infections and tissue transplantation.
- Pathophysiology of the body's response to trauma.
- Surgery in the immuno-compromised patient.

TRAUMA

Initial Assessment and Resuscitation after Trauma

- Clinical assessment of the injured patient.
- Maintenance of airway and ventilation.
- Haemorrhage and shock.

Chest, Abdomen and Pelvis

- Cardiorespiratory physiology as applied to trauma.
- Penetrating chest injuries and pneumothorax.
- Rib fractures and flail chest.
- Abdominal and pelvic injuries.

Central Nervous System Trauma

- Central nervous system: anatomy and physiology relevant to clinical examination of the central nervous system; understanding of its functional disorders particularly those caused by cranial or spinal trauma; and interpretation of special investigations.
- Intracranial haemorrhage.
- Head injuries, general principles of management.
- Surgical aspects of meningitis.
- Spinal cord injury and compression.
- Paraplegia and quadriplegia - principles of management.

Special Problems

- Pre-hospital care.

- Triage.
- Trauma scoring systems.
- Traumatic wounds - principles of management.
- Gunshot and blast wounds.
- Skin loss - grafts and flaps.
- Burns.
- Facial and orbital injuries.

Principles of Limb Injury

- Peripheral nervous system - anatomy and physiology.
- Fractures - pathophysiology of fracture healing.
- Non-union, delayed union, complications.
- Principles of bone grafting.
- Traumatic oedema, compartment and crush syndromes, fat embolism.
- Brachial plexus injury.

INTENSIVE CARE

Cardiovascular

- The surgical anatomy and applied physiology of the heart relevant to clinical cases.
- Physiology and pharmacological control of cardiac output, blood flow, blood pressure, and coronary circulation.
- Cardiac arrest, resuscitation.
- Monitoring of cardiac function in the critically ill patient, central venous pressure, pulmonary wedge pressure, tamponade, cardiac O/P measurements.
- The interpretation of special investigations.
- The management of haemorrhage and shock.
- Pulmonary oedema.
- Cardiopulmonary bypass - general principles, cardiac support.

Respiratory

- The surgical anatomy of the airways, chest wall, diaphragm and thoracic viscera.
- The mechanics and control of respiration.
- The interpretation of special investigations; lung function tests, arterial blood gases, radiology.
- The understanding of disorders of respiratory function caused by trauma, acute surgical illness and surgical intervention.
- Respiratory failure.
- Complications of thoracic operations.
- Adult respiratory distress syndrome.
- Endotracheal intubation, laryngotomy, tracheostomy.

- Artificial ventilation.

Multisystem Failure

- Multisystem failure.
- Renal failure - diagnosis of renal failure, complications of renal failure.
- GI tract and hepatic failure.
- Nutrition.

Problems in Intensive Care

- Sepsis, predisposing factors, organisms causing septicaemia.
- Complications of thoracic operations.
- Localised sepsis, pneumonia, lung abscess, bronchiectasis, empyema, mediastinitis.

Principles of ICU

- Indications for admission.
- Organisation and staffing.
- Scoring.
- Costs.

NEOPLASIA: TECHNIQUES AND OUTCOME OF SURGERY

Principles of Oncology

- Epidemiology of common neoplasms and tumour-like conditions; role of cancer registries.
- Clinico-pathological staging of cancer.
- Pathology, clinical features, diagnosis and principles of management of common cancers in each of the surgical specialties.
- Principles of cancer treatment by surgery, radiotherapy, chemotherapy, immunotherapy and hormone therapy.
- The principles of carcinogenesis and the pathogenesis of cancer relevant to the clinical features, special investigations, staging and the principles of treatment of the common cancers.
- Principles of molecular biology of cancer, carcinogenesis; genetic factors; mechanisms of metastasis.

Cancer Screening and Treatment

- The surgical anatomy and applied physiology of the breast relevant to clinical examinations, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the breast.
- The breast: acute infections; benign breast disorders; nipple discharge; mastalgia. Carcinoma of breast; mammography; investigation and treatment.
- Screening programmes.

Techniques of Management

- Terminal care of cancer patients; pain relief.
- Rehabilitation.

- Psychological effects of surgery and bereavement.

Ethics and the Law

- Medical/legal ethics and medico-legal aspects of surgery.
- Communication with patients, relatives and colleagues.

Outcome of Surgery

- The evaluation of surgery and general topics.
- Decision-making in surgery.
- Clinical audit.
- Statistics and computing in surgery.
- Principles of research and design and analysis of clinical trials.
- Critical evaluation of innovations - technical and pharmaceutical.
- Health service management and economic aspects of surgical care.

LOCOMOTOR SYSTEM

Musculo-skeletal anatomy and physiology relevant to clinical examination of the locomotor system and to the understanding of disordered locomotor function, with emphasis on the effects of acute musculo-skeletal trauma.

Effects of Trauma and Lower Limb

- Effects of acute musculo-skeletal trauma.
- Common fractures and joint injuries.
- Degenerative and rheumatoid arthritis (including principles of joint replacement).
- Common disorders of the lower limb.
- Amputations and prosthesis.

Infections and Upper Limb

- Common soft tissue injuries and disorders.
- Infections of bones and joints (including implants and prostheses).
- Pain in the neck, shoulder and arm.
- Common disorders of the hand, including hand injuries and infections.

Bone Disease and Spine

- Common disorders of infancy and childhood.
- Low back pain and sciatica.
- Metabolic bone disease (osteoporosis, osteomalacia).
- Surgical aspects of paralytic disorders and nerve injuries.

VASCULAR

The surgical anatomy and applied physiology of blood vessels relevant to clinical examination, the interpretation of special investigations and the understanding of the role of surgery in the management of cardiovascular disease

Arterial Diseases

- Chronic obliterative arterial disease.
- Amputations.
- Aneurysms.
- Carotid disease.
- Special techniques used in the investigation of vascular disease.
- Limb ischaemia: acute and chronic; clinical features; gangrene; amputations for vascular disease.
- Principles of reconstructive arterial surgery.
- Atherosclerosis
- Principles of Angioplasty/stenting
- Thrombolysis
- Reno-vascular disease
- Raynaud's/vasospastic disorders
- Lymphoedema
- Cerebrovascular disease
- Vasculitis
- Mesenteric ischaemia
- Graft prosthetics
- Graft surveillance
- Autonomic dysfunction
- Reperfusion injury
- Ischaemic limb Arterial trauma
- Hyper/hypo coagulable state
- Arteriography
- Continuous wave doppler
- Duplex ultrasound

Venous Diseases

- Vascular trauma and peripheral veins.
- Varicose veins.
- Venous hypertension, post-phlebitic leg, venous ulceration.
- Disorders of the veins in the lower limb.
- Deep venous thrombosis and its complications.
- Chronic ulceration of the leg.
- Thrombosis and embolism.

Lymphatics and Spleen

- Thromboembolic disease.
- Spleen; role of splenectomy; hypersplenism.

- Lymph nodes; lymphoedema.
- Surgical aspects of auto-immune disease.
- The anatomy and physiology of the haemopoeitic and lymphoreticular systems.
- Surgical aspects of disordered haemopoiesis.

HEAD, NECK and ENDOCRINE

The surgical anatomy and applied physiology of the head and neck relevant to clinical examination, the interpretation of special investigations, the understanding of disorders of function, and the treatment of disease and injury involving the head and neck.

The Head

- Laryngeal disease; maintenance of airway; tracheostomy.
- Acute and chronic inflammatory disorders of the ear, nose, sinuses and throat.
- Intracranial complications.
- Foreign bodies in ear, nose and throat.
- Epistaxis.
- Salivary gland disease.
- The eye - trauma, common infections.

Neck and Endocrine Glands

The surgical anatomy and applied physiology of the endocrine glands relevant to clinical examination, the interpretation of special investigations, the understanding of disordered function and the principles of the surgical treatment of common disorders of the endocrine glands.

- Common neck swellings.
- Thyroid: role of surgery in diseases of the thyroid; complications of thyroidectomy; and the solitary thyroid nodule.
- Parathyroid; hyperparathyroidism; hypercalcaemia.
- Secondary hypertension.
- Pituitary
- Adrenal cortex
- Adrenal medulla
- Gut as endocrine organ
- Endocrine pancreas and the management of:-
- Thyrotoxicosis
- Adrenal insufficiency
- Hyper/hypo thyroidism
- Carcinoid syndrome
- Counselling and screening in familial disease
- Anaesthetic and pharma-cological problems
- Radio-immuno assays

- Imaging techniques
- Histo/cyto pathology

Paediatric Surgical Disorders

- Neonatal physiology: the special problems of anaesthesia and surgery in the newborn; and the principles of neonatal fluid and electrolyte balance.
- Correctable congenital abnormalities.
- Common paediatric surgical disorders: cleft lip and palate; pyloric stenosis; intussusception; hernia; maldescent of testis; torsion; and diseases of the foreskin.
- RIF pain
- Testicular pain
- Paediatric trauma
- Burns
- Intussusception
- Pyloric stenosis
- Hirschprung's disease
- Ano-rectal anomalies
- Tracheo-oesophageal fistula
- Spina bifida
- Congenital small bowel obstruction
- Intestinal malrotation
- Associated anomalies
- Paediatric oncology
- Management of less complex abdominal trauma
- Hydrocephalus

ABDOMEN

The surgical anatomy of the abdomen and its viscera and the applied physiology of the alimentary system relevant to clinical examination, the interpretation of common special investigations, the understanding of disorders of function, and the treatment of abdominal disease and injury.

Abdominal Wall

- Anatomy of the groin, groin and other ventral hernias, acute and elective; clinical features of hernias; complications of hernias.
- Anterior abdominal wall, anatomy, incisions, laparoscopic access.

Acute Abdominal Conditions

- Peritonitis; intra-abdominal abscesses.
- Common acute abdominal emergencies.
- Intestinal obstruction; paralytic ileus.

- Intestinal fistulae.
- Investigation of abdominal pain.
- Investigation of abdominal masses.
- Gynaecological causes of acute abdominal pain.
- Pelvic inflammatory disease.
- Assessment of the acute abdomen
- Appendicitis and right iliac fossa pain
- Peritonitis
- Acute intestinal obstruction
- Intestinal pseudo-obstruction
- Biliary tract emergencies
- Acute pancreatitis
- Strangulated hernia
- Intestinal ischaemia
- Swallowed foreign bodies
- Gastrointestinal bleeding
- Toxic megacolon
- Superficial sepsis and abscesses
- Acute ano-rectal sepsis
- Ruptured aortic aneurysm
- Acute presentations of urological disease
- Acute presentations of gynaecological disease

Abdominal injury

- Assessment of the multiply injured patient
- Triage (major accidents)
- Battle triage and Field hospitals
- Initial management of head injuries.
- Closed abdominal injuries, especially splenic, hepatic and pancreatic injuries
- Closed chest injuries
- Stab and gunshot wounds
- Arterial injuries
- Injuries of the urinary tract
- Initial management of head injuries and interpretation of CT scans
- Initial management of severe burns

SMALL BOWEL AND COLORECTAL DISORDERS

- Neoplasms of large bowel

- Inflammatory bowel disease (inc.medical management)
- Diverticular disease
- Irritable bowel syndrome
- Haemorrhoids
- Anal fissure
- Rectal prolapse
- Acute appendicitis/RIF pain
- Intestinal obstruction
- Intestinal pseudo-obstruction
- Intestinal ischaemia
- Peritonitis
- Large bowel and rectal injuries
- Anal tumours
- Pelvic autonomic nerves
- Screening for colorectal cancer
- Genetics of colorectal cancer
- Place of radiotherapy and chemotherapy in treatment
- Anorectal physiology
- Anorectal ultrasound
- Faecal incontinence
- Chronic constipation
- Intestinal fistulae
- Colonic bleeding
- Radiation enterocolitis
- Other small bowel conditions
- Colonic obstruction
- Colonic perforation

The use of staplers

LAPAROSCOPIC SURGERY

- Laparoscopic anatomy of the abdomen
- Diagnostic laparoscopy
- Physiology of pneumo-peritoneum Dangers of pneumoperitoneum
- Principles of diathermy
- Informed consent for laparo-scopic procedures
- Pre and post operative management of laparoscopic cases
- Port complications

- Technology of video imaging, cameras, insufflator etc.
- The methods of manipulation of images
- Laparoscopic instruments, clips, staplers and port types
- Management of equipment failure
- Ultrasound interpretation, internal and external techniques
- Recognition and management of laparoscopic complications
- Use and dangers of diathermy
- Anaesthetic problems in laparoscopic surgery
- Medico-legal implications of video-endoscopic surgery
- Theory and pracice of choledocho-scopy
- Theory of different forms of diathermy
- Laparoscopic ultrasound
- Advanced instrumentation and equipment
- Endoscopic suturing devices
- Theory, uses and dangers of lasers and other energy sources e.g. harmonic scalpel
- Creation and maintenance of new endoscopic spaces
- Use of assistance robots and robotic instruments

TRANSPLANTATION withspecial reference to RENAL AND HEPATIC DISEASE

- Pathology of renal and hepatic disease
- Patho-physiology of renal and hepatic failure
- Peritoneal- and haemo-dialysis
- Management of fluid and electrolyte disorders
- Selection of patients for transplantation
- Post-operative management
- Immuno-pathology of rejection
- Management of rejection
- Immunosuppression
- Opportunist infections
- Immunosuppression and cancer
- Transmission of viral and fungal diseases
- Tissue typing
- The HLA system
- Bladder dysfunction

HEPATOPANCREATOBILIARY SURGERY

- Gallstones and complications

- Biliary stricture
- Obstructive Jaundice
- Neoplasms of the Liver, Biliary Tract and Pancreas
- Pancreatitis, acute and chronic, complications
- Liver injuries
- Portal Hypertension
- Hydatid disease
- ESRD and Liver transplatation

UPPER GI TRACT

- Neoplasms of the upper GI tract
- Management of perforations of the upper GI tract
- Management of intestinal obstruction
- Management of GI bleeding
- Oesophageal motility disorders
- Oesophageal Strictures
- Gastro-oesophageal reflux and its complications
- Peptic ulceration and its complications
- Radiation enteritis
- Abdominal trauma
- Principles of screening for cancer
- The use and limitations of multimodality treatment for upper GI cancer
- Oesophageal motility disorders
- Other small bowel conditions
- Principles of Small bowel resection
- Sutured and stapled anastomoses
- Urinary Tract
- Urinary tract infection.
- Urinary Tract Obstruction
- Haematuria.
- Trauma to the urinary tract.
- Urinary calculi.
- Retention of urine.
- Urinary tract Neoplasms
- Disorders of prostate.
- Pain and swelling in the scrotum.
- Other Scrotal Lesions
- Testicular Neoplasms

NEUROSURGERY

- Cranial, spinal and peripheral nerve tumours
- Head Injury
- Spinal and peripheral nerve injuries
- Hydrocephalus
- Cerebrovascular Accidents
- Infections
- Recent advances

Cardiac and Thoracic Surgery

- Myocardial revascularisation
- Valvular Disorders
- Peripheral vascular disease
- Renovascular disease
- Secondary Hypertension
- Inflammatory Lung Disease
- Chest Wall lesions
- Thoracic Neoplastic Disease
- Chest Trauma
- Pleural Diseases

Orthopaedics

- Principles of Orthopaedic Trauma
- Casts and braces
- Nerve injuries
- Hand Infections
- Principles of Traction
- Amputations
- Principles of Rehabilitation
- Congenital Lesions
- Bone and Joint Infections

SKILLS

Objectives

1. To provide a comprehensive and structured training programme in general surgery and to enable trainees to achieve the training and experience necessary for independent practice.
2. The PG should be able to take proper history, conduct physical examination, perform or request for relevant investigations. He should be able to interpret these investigations to arrive at a working diagnosis.

3. Communicate with patient. Discuss operative plan, possible management options, postoperative complications etc and be able to take informed consent
4. Perform minor operative procedures and common major general surgical operations independently
5. Evaluate and manage trauma and acute surgical emergencies.
6. Undertake Critical care
7. Undertake wound management

Basic Ward Procedures

- Insertion of intravenous cannula, Nasogastric tube, urinary catheters
- Removal of Tubes and Drains
- Abdominal Paracentesis, Pleural Tap
- Venous Cutdown
- Wound dressings

ICU Procedures

- Insertion of CVP line, arterial lines, endotracheal intubation
- Intercostal Drainage
- Tracheostomy
- Knowledge of Ventilators and Monitors
- Prescribing TPN

Minor Surgical Procedures

- Hydrocele surgery, Lymph node biopsy, Excision of superficial swellings, Ingrowing toe nail, Circumcision, Banding of Haemrrhoids, Vasectomy

Emergency Room Procedures

- Diagnostic peritoneal lavage (DPL)
- Suturing of lacerations
- Drainage of abscesses
- Wound Debridement
- Reduction and Plaster application of simple fractures and dislocations
- Anal Dilatation and Sphincterotomy
- Preoperative Workup and Postoperative Care

Major Operative Procedures

A) Perform Independently/ Assistance:

The following list is not exhaustive. The Trainee should try to get the maximal operative exposure possible. The range of exposure will also depend upon the type of surgeries a particular unit (where the Trainee is posted) is performing.

Routine: Open and laparoscopic Cholecystectomy, Groin Hernia Repair, Mastectomy, Breast Lump Excision, microdochectomy, Radical Duct Excision, Hemithyroidectomy, Laparotomy, Diagnostic laparoscopy, Thoracotomy, Cystogastrostomy, Suprapubic cystostomy, Hemicolectomy, Cysts and

Sinuses of the Neck, Gastrostomy and feeding jejunostomy, Nephrectomy, Pyelolithotomy, Ureterolithotomy, Orchidopexy, Skin grafting, Varicose vein surgery, vein harvesting, Lumbar Sympathectomy, Small bowel resection, Femoral herniorrhaphy, Umbilical and para umbilical hernia repair, Incisional and para-stomal hernia repair

Emergency: Appendectomy, Laparotomy for intestinal Obstruction, Trauma Laparotomy, Splenectomy, Closure of Peptic Ulcer Perforation, Enteric Perforation, Resection-Anastamosis of bowel, Colostomy, Hemicolectomy, Amputations, Embolectomy, Tracheostomy, Obstructed Inguinal Hernia

B) Assist/Observe

Vascular

- Reconstructive arterial surgery.
- Aneurysm Surgery

HEAD, NECK, ENDOCRINE AND PAEDIATRIC

The Head

- Parotidectomy, submandibular gland excision

Neck and Endocrine Glands

- Thyroidectomy, parathyroidectomy, congenital or developmental problems
- Adrenalectomy
- Surgery for endocrine pancreatic tumours

Paediatric Disorders

- Common paediatric surgical disorders: cleft lip and palate; pyloric stenosis; intussusception; hernia; maldescent of testis; torsion; and diseases of the foreskin.

ABDOMEN

- Sub-total colectomy
- Diagnostic laparoscopy
- Gastrectomy for bleeding
- Endoscopy for upper GI obstruction
- Laparotomy for perforated colon
- Suture of bleeding peptic ulcer
- Emergency cholecystectomy
- Exploration of scrotum for torsion
- Emergency hernia repair
- Laparotomy for abdominal
- Reduction of paraphimosis
- Laparotomy for small bowel injury
- Diagnostic peritoneal lavage
- Intestinal obstruction
- Splenic repair

- Hartmann's operation
- Operation for ruptured liver
- Pancreatic debridement
- Median sternotomy

Reconstructive Surgery

- Myocutaneous flaps
- Tissue expanders
- Breast reduction

Colorectal

- Therapeutic Endoscopy, colonoscopy
- Anterior resection of rectum
- AP resection of rectum
- Ileorectal anastomosis
- Panproctocolectomy
- Closure of Hartmann's
- Prolapse surgery
- Incontinence surgery
- Sphincter repair
- Recto-vaginal fistula
- Ileo-anal and colonic pouch
- Colo-anal anastomosis
- Operation for intestinal fistula
- Complex fistula-in-ano
- Posterior approach to rectum
- Block dissection of groin
- Operative cholangiography
- Laparoscopic suturing and knotting
- Nephrectomy
- Pyelo and ureterolithotomy
- Pyeloplasty
- Open prostatectomy

Laparotomy for acute abdomen

- Splenectomy
- Oesophageal dilatation
- Operations for upper GI bleeding
- Exploration of common bile duct

- Biliary bypass
- Formation of Roux-en-Y loop
- Oesophagectomy/total gastrectomy
- Pancreatectomy
- Liver resection
- Oesophagectomy
- Total and subtotal
- gastrectomy
- Heller's myotomy
- Long oesophageal myotomy
- Pharyngeal pouch
- Repair of biliary stricture
- Whipple's procedure
- Pancreatectomy (distal and total)
- Drainage of infected pancreatitis
- Drainage of pancreatic pseudo-cyst
- Liver injuries
- Hydatid disease
- Porto-systemic shunt
- Vascular suture/anastomosis
- Control of venous bleeding
- Balloon thrombo-embolectomy
- Fasciotomy
- Artenal injuries
- Vascular access for dialysis

ORTHODONTICS — M D S

The course shall comprise of a minimum of three years which the student will be deemed to have acquired :

(a) An update to knowledge of Clinical Orthodontics, reentgeno-cephalometrics, growth and development of teeth, jaws, periodontium, TMJ and occlusion.

(b) Competance at running independently orthodontic services and cleft palate Orthodontics.

(c) Working knowledge of some of the important instruments , equipments in the scientific investigation of malocclusion of teeth, jaws and craniofacial anomalies.

(d) Familiarity with the modern teaching methods and assessment strategies for undergraduate students.

(e) And have undergone concurrent clinical training in major disciplines.

The student shall be rotated for training in different sections i.e. Radiodiagnosis (roentgeno-cephalometric) and Otolaryngology (oral breathing, nasal obstructions & speech). The student shall write at least two papers and a thesis on a research project under the perceptorship of the guide.

The course shall be given in the following forms

1. Didactic lectures, seminars, demonstrations & laboratory techniques twice a week.
2. The lectures will be so arranged that the student joining either in January or July will rotate without difficulty. A good number of lecturers/demonstrations will be necessary in order to cover the entire field of dentistry and its sub-specially of Orthodontics.
3. There will be journal club once a week. Each student will be assigned a journal of Orthodontics or of allied sciences for this purpose of Orthodontics or of allied sciences for this purpose to review the more important articles that have appeared in current journals irrespective of topic to give practice to the student in comprehension and presentation of the data and his own views before a group.
4. Clinical case conference twice a week – the student will present all data including cephlometric analysis for discussion in the conference of faculty and students.
5. The students will work on patients in the clinics, both in the mornings and in the afternoons under the supervision of the teachers.
6. Lecturers in the basic sciences – attending at this course given by the basic science disciplines will