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1. Goal:

The Postgraduate Program in Surgery (MS Surgery) will create specialists providing effective, safe, ethical, patient-centered health care, with a humane approach. The program would offer the best of pedagogical practices to nurture the teaching skills and provide a platform for academic leadership. It would enable the professional to get acquainted with the common surgical problems in the Indian context, with a spirit of inquiry and a quest for formulation of evidence-based treatment protocols.

2. Mission Statement and Motto:

Mission Statement

To nurture a vibrant academic platform with a scientific temper, thereby creating leaders in surgical education with a spirit of innovation and inquiry, with provision of comprehensive, cost-effective, patient-centered, quality health care

Motto

Educate, Innovate, Heal



3. Program Outcomes

Upon completion of the MS Surgery program, the postgraduate student shall be able to:

Number	Outcome
PO 1	Diagnose and manage common surgical conditions and emergencies
PO 2	Identify and provide essential pre-operative and post-operative requirements for surgical patients
PO 3	Counsel patients and their relatives regarding the need of a surgical procedure, its implications and related problems; obtain a valid written and informed consent for a surgical procedure
PO 4	Identify cases requiring urgent surgical intervention / appropriate referral at the optimum time
PO 5	Execute medico-legal and ethical responsibilities effectively
PO 6	Plan preventive and rehabilitative measures for surgical patients whenever required
PO 7	Identify priorities in cases of mass disasters
PO 8	Demonstrate an aptitude for scientific writing, including critical appraisal of published literature
PO 9	Formulate a research project with well-defined objectives and evaluation parameters
PO 10	Demonstrate competency in teaching medical / paramedical students, with a quest for innovative pedagogies
PO 11	Conduct periodic surgical audits
PO 12	Update knowledge and newer techniques in the specialty and strive for continuous professional development
PO 13	Exhibit highest professional values, with integrity, accountability, responsibility and compassion for fellow beings
PO 14	Implement various relevant National Health Programmes effectively and responsibly
PO 15	Lead the healthcare team effectively



4. **Eligibility:** MBBS

5. **Selection Process:** AIIMS PG Entrance Examination

6. Syllabus:

6.1 List of Topics:

General Surgery

- History of Surgery
- Metabolic Response to Injury
- Wound healing
- Shock
- Burns
- Fluid Electrolyte balance / imbalance
- Acid Base balance / disorders
- Blood and Blood transfusion
- Tetanus
- Gas Gangrene
- Sterilization and Disinfection
- OT techniques
- General principles of Oncology
- Acute infections
- Chronic infections
- Pre and Post-operative care
- Informed Consent
- Nosocomial Infections
- Diseases of Arteries
- Diseases of Veins
- Diseases of Lymphatics
- Diseases of Nerves
- Surgical Nutrition
- Hand Infections
- Skin grafting
- Skin and subcutaneous tissue
- Diabetic Foot
- Necrotizing Fasciitis
- Principles of Minimal Access Surgery



- Principles of Robotic Surgery
- Principles of Endoscopy
- Principles of Organ Transplantation
- Surgical Ethics
- Surgical Audit
- General aspects of Trauma
- Day Care Surgery
- Universal Safety Precautions
- Principles of Chemotherapy
- Principles of Radiotherapy
- Medico-legal aspects
- Molecular Biology and Genetics
- Basic Principles of Anaesthesia
- Critical Care in surgical practice
- Peri-operative Management of surgical patient
- Pharmacovigilance
- Drug resistance
- Antibiotic prophylaxis
- Use of computers in surgery
- Health Economics
- Surgical diathermy
- Clinical Trials
- Research methodology
- Critical appraisal of research article
- Consumer Protection Act
- All Basic Sciences as applicable to General Surgery

Head, Face Neck

- Head injury
- Hydrocephalus
- Spina Bifida
- Salivary Gland diseases
- Cleft Lip, Cleft Palate
- Diseases of Oral Cavity
- Neck swellings
- Diseases of Thyroid
- Diseases of Parathyroid
- Thoracic Outlet Syndrome



- Maxillo-facial injuries
- Jaw Tumors
- Head and neck trauma
- Brain Death
- Acute and chronic infections of brain and meninges
- Foreign bodies in Ear, Nose, Throat
- Epistaxis
- Ocular trauma and infections

Breast

- Benign Breast Diseases
- Carcinoma Breast
- Breast reconstruction
- Screening Programmes

Endocrine

- Adrenal Gland disorders
- Pituitary
- Thyroid
- Parathyroid
- Endocrine Pancreas
- Carcinoid Syndrome

Gastro-intestinal Tract

- Oesophagus
- Stomach and Duodenum
- Small Intestine
- Large Intestine
- Appendix
- Rectum and Anal Canal
- Abdominal Wall
- Umbilicus
- Peritoneum
- Upper GI Bleeding
- Lower GI Bleeding
- Abdominal trauma
- Abdominal Tuberculosis



Hepato-biliary and Spleen

- Extra-hepatic Biliary Apparatus
- Liver
- Pancreas
- Spleen
- Portal Hypertension
- Obstructive Jaundice
- Trauma
- Liver Transplantation

Genito-urinary Tract

- Kidney
- Ureter
- Urinary Bladder
- Urethra
- Scrotum
- Penis
- Genito-urinary Tuberculosis
- Hernia
- Haematuria
- Acute Urinary Retention
- Urinary Tract Infection
- Trauma
- Renal Transplantation
- Renovascular Hypertension
- Vesico-ureteric Reflux
- Male Infertility

CVTS

- Chest Injuries
- Cardiac Arrest
- Myocardial revascularization
- Pulmonary Embolism
- Empyema Thoracis
- Chest wall lesions
- Valvular disorders



- Pleural diseases
- Mediastinal tumors
- Basics of Congenital Heart Disease

Paediatric Surgery

- Congenital Diaphragmatic Hernia
- Tracheo-Oesophageal Fistula
- Anorectal Malformations
- Hypospadias, Epispadias
- Ectopia Vesicae
- Hirschsprung's Disease
- Congenital Hypertrophic Pyloric Stenosis
- Meconium Ileus
- Choledochal Cyst
- Exomphalos
- Gastroschisis
- Intestinal Malrotation
- Undescended testis, Ectopic testis
- Paediatric trauma
- Neonatal fluid and electrolyte balance

Miscellaneous

- LASER in Surgery
- Staplers in Surgery
- Laparoscopic Ultrasound
- Endoscopic suturing devices
- Point-of-Care investigations
- Quality of Life
- Enhanced Recovery After Surgery Protocols
- Skin Bank
- Advances in wound management
- Evidence-Based Surgery

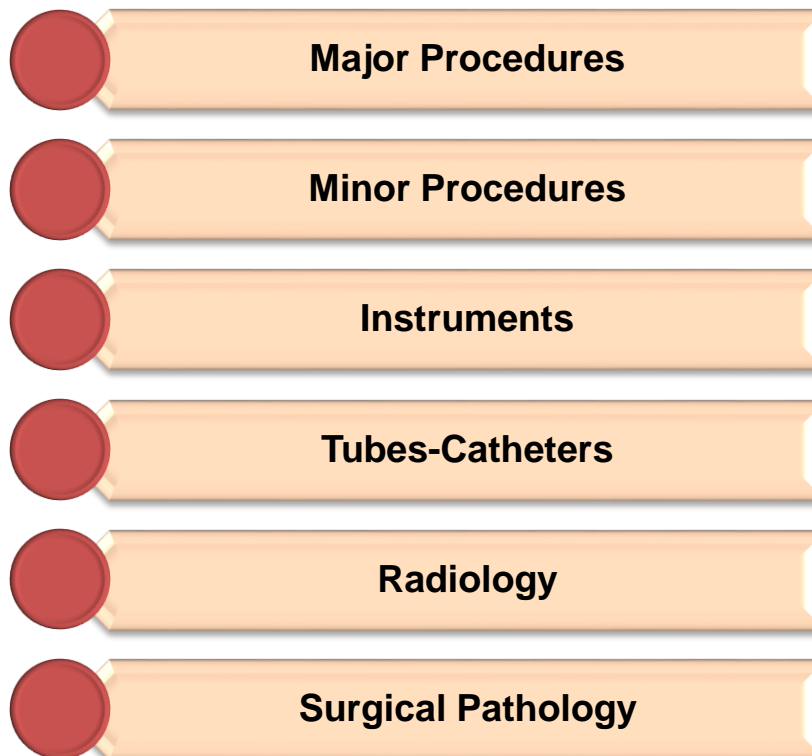
Orthopaedics

- Common fractures and joint injuries
- Amputations and Prosthesis



- Metabolic bone disease
- Surgical aspects of paralytic disorders
- Musculoskeletal trauma
- Principles of Traction
- Casts and Braces
- Principles of Rehabilitation

6.2 List of Skills:



6.2.1 General:

- Art of history taking
- Arriving at a logical working diagnosis
- Formulation of relevant investigation protocol for common surgical conditions and emergencies
- Preparation of treatment algorithm for common surgical conditions and emergencies
- Writing a case record



- Infection Control practices and use of Personal Protective Equipment
- Informed Consent for a procedure
- Techniques of asepsis
- Principles of First Aid
- IV access and monitoring
- Start and monitor blood transfusion
- Cardiopulmonary Resuscitation
- Evaluation and stabilization of a patient with acute volume loss and GI bleed
- Digital rectal examination
- Proctoscopy
- Endotracheal intubation
- Palpation of breast lesions
- Wound dressings
- Controlling external haemorrhage
- Removal of tubes and drains
- Bandages
- Identification of indications for surgical referral
- Assessment of burn injury with preliminary management
- Prescribing TPN
- Interpretation of arterial blood gases
- Principles of stoma care
- Counseling for organ donation
- Basic Life Support
- Principles of pre-hospital care and triage
- Advanced Trauma Life Support
- Knowledge of ventilators and monitors
- Principles and steps for common nerve blocks used in Surgery
- Operation theatre techniques: trolley layout, asepsis, scrubbing and gowning, skin painting and draping

The list of operative procedures is not exhaustive. The trainee should try to get the maximal operative exposure possible.

6.2.2 Minor Procedures:

- Nasogastric tube insertion
- Urinary catheterization
- Venesection
- Intercostal Drainage



- Tracheostomy
- CLW suturing
- Incision and Drainage of Abscess
- Circumcision
- Suprapubic Cystostomy
- Lymph Node Biopsy
- Basic suturing
- Wound debridement
- Biopsies of surface lesions
- Removal of small subcutaneous swellings
- Peritoneal and pleural tapping
- Cricothyroidotomy
- Banding of Haemorrhoids
- Fine Needle Aspiration Cytology
- Core Needle Biopsy
- Imprint Cytology
- Image-guided aspiration / biopsy

6.2.3 Major Procedures:

6.2.3.1 Perform independently / assist:

- Open Cholecystectomy
- Laparoscopic Cholecystectomy
- Groin hernia repair
- Breast lump excision
- Modified Radical Mastectomy
- Microdochectomy
- Surgery for Gynaecomastia
- Thyroidectomy
- Appendicectomy
- Surgeries for Hydrocoele
- Laparotomy and abdomen closure
- Diagnostic Laparoscopy
- Thoracotomy
- Cystogastrostomy
- Hemicolectomy
- Excision of Neck swellings
- Feeding Gastrostomy



- Feeding Jejunostomy
- Pyelolithotomy
- Nephrectomy
- Ureterolithotomy
- Orchidopexy
- Orchidectomy
- Skin grafting
- Varicose Vein surgeries
- Lumbar sympathectomy
- Bowel resection-anastomosis
- Stoma
- Stoma closure
- Femoral hernia surgery
- Umbilical and Paraumbilical hernia repair
- Incisional hernia repair
- Splenectomy
- Closure of peptic Ulcer Perforation
- Closure of Enteric Perforation
- Amputations
- Heller's cardiomyotomy
- Surgery for obstructed inguinal hernia
- Reduction of paraphimosis
- Release of tongue-tie
- Fasciotomy
- Milligan Morgan Haemorrhoidectomy
- Vasectomy
- Urethral dilatation
- Surgery for Varicocele

6.2.3.2 Assist / Observe:

- Parotidectomy
- Submandibular gland excision
- Adrenalectomy
- Surgery for endocrine pancreatic tumors
- Paediatric surgeries
- Reconstructive arterial surgeries
- Gastrectomy



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- Exploration of scrotum for torsion
- Hartmann's procedure
- Liver trauma
- Pancreatic surgeries
- Myocutaneous flaps
- Abdomino-perineal resection of rectum
- Rectal prolapsed surgeries
- Fistula-in-ano surgeries
- Lateral sphincterotomy
- Stapler haemorrhoidectomy
- Surgery for enterocutaneous fistula
- Total Colectomy
- Surgeries for GERD
- Roux-en-Y loop surgery
- Inguinal block dissection
- Intra-operative cholangiography
- Open Prostatectomy
- Partial and Total amputation of Penis
- Oesophageal resections
- Common Bile Duct exploration
- Repair of biliary stricture
- Whipple's procedure
- Liver resection
- Hydatid disease
- Porto-systemic shunt surgeries
- Thrombo-embolism
- Vascular access for dialysis
- Surgeries for oral malignancies
- Radical Neck Dissection
- Median Sternotomy
- Vein harvesting
- Diagnostic Peritoneal Lavage
- Craniotomy
- Nerve repair
- Tendon repair
- Burr Hole operation
- Endoscopy



6.2.4 Instruments:

- Allis forceps
- Babcock forceps
- Kocher forceps
- Lanes forceps
- Sinus forceps
- Straight artery forceps
- Curved artery forceps
- Small artery forceps
- Right angled forceps
- Needle Holder
- Needles (round-bodied, cutting)
- Cheatle forceps
- Randall's Pyelolithotomy forceps
- Des Jardin's Choledocholithotomy forceps
- BP handle
- Surgical blades
- Humby's knife
- Suture cutting scissors
- Dissecting scissors
- Langenbach's retractor
- Doyen's retractor
- Deaver's retractor
- Zerny's retractor
- Balfour's retractor
- Sponge holding forceps
- Towel clips
- Proctoscope
- Fistula probe
- Anal dilators
- Urethral dilator
- Intestinal clamps
- Tongue depressor

6.2.5 Tubes-Catheters:

- Foley's catheter
- Ryles tube



- Urobag
- Scalp vein set
- IV set
- Blood transfusion set
- Nelaton's catheter
- Tracheostomy tube
- Endotracheal tube
- Turpentine oil
- Gel foam
- IV fluids (5% D, RL, NS, DNS, Dextran 40)
- Sutures (Vicryl, Silk, Ethilon, Prolene, Catgut, Linen)
- Betadine
- Betascrub
- Savlon
- Hydrogen Peroxide
- Inj. Sodabcarb
- Inj. Avil
- Inj. Calcium Gluconate
- Cotton
- Gauze
- Gamgee
- Crepe bandage
- Glass slides
- Syringes (2 cc, 5 cc, 10 cc, 20 cc)
- IM needles
- Aseptosyringe
- Romovac suction drain
- Tube drain
- Corrugated Rubber drain
- ICD bag
- DJ-stent
- Pig tail catheter
- SPC
- Dressing Trolley
- Lignocaine Jelly

6.2.6 Radiology:

- Gas under diaphragm



- Air-fluid levels
- Foreign Body in GIT
- Renal Calculus
- Ureteric Calculus
- Vesico-Ureteric Junction Calculus
- Vesical Calculus
- Chest X-Ray: Cannon Ball Metastases
- Chest X-Ray: Pneumothorax
- Chest X-Ray: Fracture Ribs
- Chest X-Ray: Miliary Tuberculosis
- Chest X-Ray: Pleural Effusion
- Chest X-Ray: ICD in situ
- Barium Swallow
- Barium Meal
- Barium Follow-through
- Barium Enema
- Intravenous Pyelography
- Micturating Cystourethrography / RGU
- Mammogram
- Orthopantomogram
- X-Ray Skull
- X-Ray Neck (AP and lateral views)
- Invertogram
- T-tube Cholangiogram / PTC

6.2.7 Surgical pathology:

- Goitre
- Cholelithiasis
- Appendicitis
- Carcinoma Penis
- Carcinoma Breast
- Carcinoma head of Pancreas
- Renal Tumors
- Amputated Foot
- Trichobezoar
- Hemicolectomy
- Urolithiasis
- Lipoma



- Oral Malignancy
- Hydatid Cyst
- Splenomegaly
- Testicular Malignancy
- Testicular torsion
- Carcinoma Stomach
- Intestinal perforation
- Meckel's Diverticulum

7. Teaching-Learning:

7.1 Activities:

	Case Presentations (Long and Short)
	Journal Club
	Microteaching
	Seminar
	Recent Advances
	Mortality - Morbidity Audit
	Dissertation Review
	Grand Round
	Clinico-Pathology Conference
	Clinical Meeting
	Tumor Board
	Didactic Lectures
	Skill Lab exercises
	Cadaveric Lab exercises



7.2 Conduct of Teaching-Learning activities:

Academic:

Case presentations, Journal Club: Once a week

Recent Advances, Didactic Lectures: Once in 15 days

Seminar, Microteaching, Grand Round, Skills Lab, Cadaveric Lab: Once a month

Dissertation Review: Once in 6 months

Mortality and Morbidity Review Board, Tumor Board, Clinical Meeting, Clinico-pathological Conference: as and when scheduled

The PG student will take active part in undergraduate training program.

Clinical:

Out-Patient Department, Surgical Wards, Intensive Care unit, Specialty Clinics

Social Commitment:

He / She will also participate in various National Health Programmes and community initiatives.

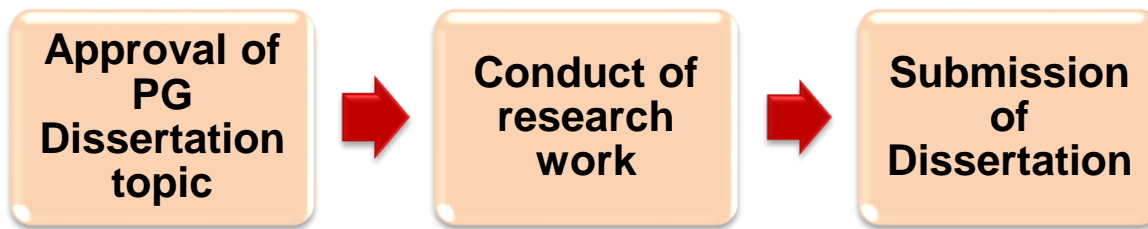
7.3 Log-Book:

The PG student will maintain Log-Book which will contain details of all the teaching-learning activities, number of cases examined in Outpatient Department, ward procedures, minor and major operative procedures done / assisted / observed and presentations at conferences. He / She will submit the completed Log-Book, signed by the concerned PG Guide, Unit Head, to the Head of the Department by the 7th of every month.



8. Dissertation:

The postgraduate dissertation will orient the student to the principles of research methodology, will instill an element of inquiry, with development of a research aptitude.



Process to be completed within six months of admission to MS Surgery program:

Activity	July admission	January admission
Selection of topic in consultation with PG Guide	September / October	March / April
Approval by Department PG Committee		
Institute Scientific Committee approval	November /	May / June
Institute Ethics Committee approval	December	
Final approval letter by Academics Section	31 st December	30 th June

Submission of Dissertation:

The Dissertation will be submitted at least six months prior to the scheduled examination, i.e. by 31st December for June examination and by 30th June for December examination.



9. Rotation Postings:

The student will have rotation postings during the second year of his / her training in the following sub-specialties for the duration as indicated below:

Sr. No.	Sub-Speciality	Duration
1.	Surgical Gastroenterology	1 month
2.	Neurosurgery	1 month
3.	Urology	1 month
4.	Cardio-Thoracic Vascular Surgery	1 month
5.	Plastic Surgery and Burns	1 month
6.	Paediatric Surgery	1 month
7.	Oncosurgery	1 month
8.	Emergency Medicine and Trauma	1 month
9.	ICU and Critical Care	1 month

10. Eligibility criteria for appearing for Professional Examination:

10.1 Minimum of 50% marks in Formative Assessment in Theory and Practical separately

10.2 Minimum of four satisfactory six monthly progress reports

10.3 Minimum one scientific paper presentation at International / National / State Surgery Conference

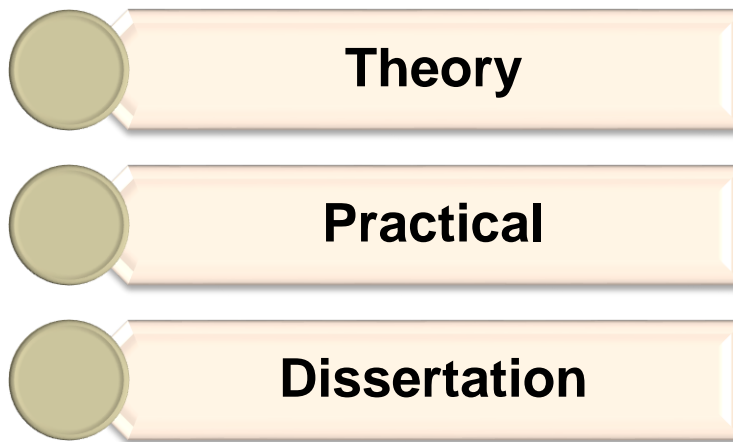
10.4 Minimum one scientific poster presentation at International / national / State Surgery Conference

10.5 Minimum one research paper – published / accepted for publication / sent for publication in a peer-reviewed indexed scientific Journal

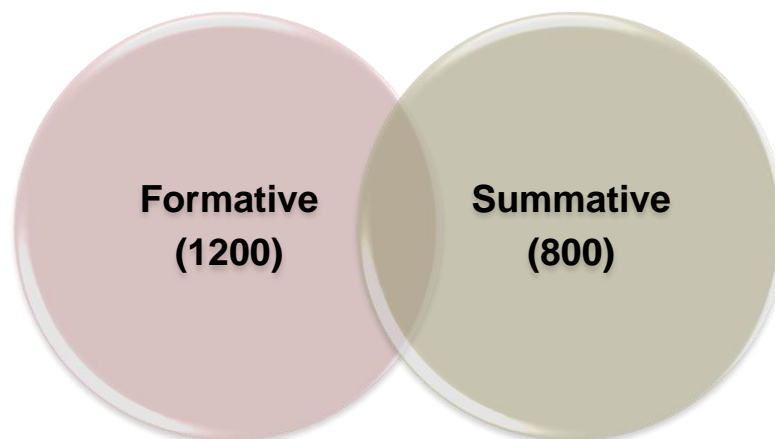


- 10.6 Minimum 50% marks in Research Methodology examination
- 10.7 Minimum 80% attendance in each year of training
- 10.8 Approval of Dissertation

11. Assessment

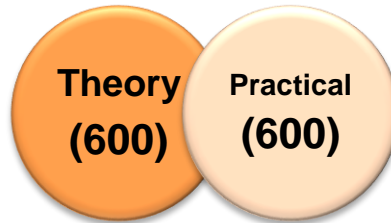


Acceptance of Dissertation is a prerequisite for appearing for the professional examination.





11.1 Formative(1200 marks)



11.1.1 Theory:

Time	Marks
At end of first year (Paper I)	100
At end of second year (Paper II)	100
Preliminary (4 Papers of 100 marks each)	400
Total	600

Pattern for Paper I and Paper II

Marks: 100 Duration: 3 hours

10 questions of 10 marks each

Note: The Prelim Examination will be conducted in accordance with the pattern of the final examination for theory.



11.1.2 Practical:

Time	Marks
At end of first year (Practical I)	100
At end of second year (Practical II)	100
Preliminary	400
Total	600

Pattern for Practical I and Practical II

Marks: 100

Long Case	50 marks
Instrument, Tubes and Catheters, Operative	20 marks
Radiology, Surgical Pathology	20 marks
Pedagogy	10 marks

11.1.3 Six monthly progress report:

The progress of the PG student will be monitored with the help of a six monthly structured report. The report will contain details pertaining to attendance, teaching-learning activities, clinical duties, teaching assignments, practical work, marks obtained at intermediate examinations, papers / posters presented, research publications and progress of dissertation work. The performance of the student will be graded by the PG Guide and the Head of the Department.

Timing for six monthly evaluation:

Report	July Session		January session	
	Period	To be submitted	Period	To be submitted
First	July to December	7 th January	January to June	7 th July
Second	January to June	7 th July	July to December	7 th January



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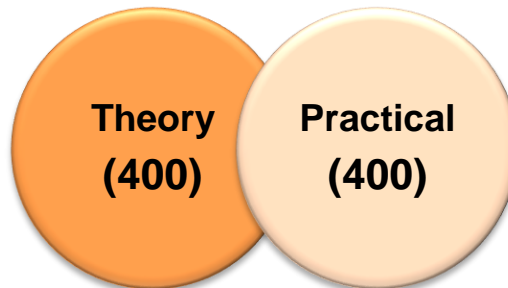
Third	July to December	7 th January	January to June	7 th July
Fourth	January to June	7 th July	July to December	7 th January
Fifth	July to December	7 th January	January to June	7 th July
Sixth	January to June	10 th June	July to December	10 th December

Note: The first five reports will be taken into consideration to decide the eligibility of the student to appear for the Professional Examination.

Note:

- 1. The Prelim Examination will be conducted in accordance with the pattern of the final examination for practicals.*
- 2. A minimum of 50 % marks is mandatory in Theory and Practical separately, in order to be eligible to appear for the Professional Examination.*

11.2 Summative(800 marks)



11.2.1 Theory Preliminary / Final Examination Pattern:

Course	Marks
Paper - I	100
Paper - II	100
Paper - III	100
Paper - IV	100
Total	400 marks



Each paper will be of three hours duration.

Pattern: 10 questions (10 marks each)

Paper I (100 marks)
(Basic Sciences and General Surgery)

(Basic Sciences as related to General Surgery, History of Surgery, Metabolic response to injury, Shock, Burns, Fluid Electrolyte Balance / Disorders, Acid-Base Balance / Disorders, Tetanus, Gas Gangrene, Blood and Blood Transfusion, Surgical Nutrition, Arteries, Veins, Lymphatics, Nerves, Skin and subcutaneous tissue, Acute infections, Chronic infections, Sterilization and Disinfection, OT Techniques, Consent, Hand infections, Diabetic Foot, Necrotizing Fasciitis, Surgical Ethics, principles of Minimal Invasive Surgery, Principles of Robotic Surgery, Principles of Organ Transplantation, Trauma)

Paper II (100 marks)
(Gastrointestinal Tract, Hepatobiliary System, Spleen, Paediatric Surgery)

Paper III (100 marks)
(Genitourinary System, Head, Face Neck, Breast, Endocrine, Neurosurgery, CVTS, Plastic Surgery)

Paper IV (100 marks)
(Recent Advances in Surgery, Allied: Radio-diagnosis, Dentistry, Anesthesia)

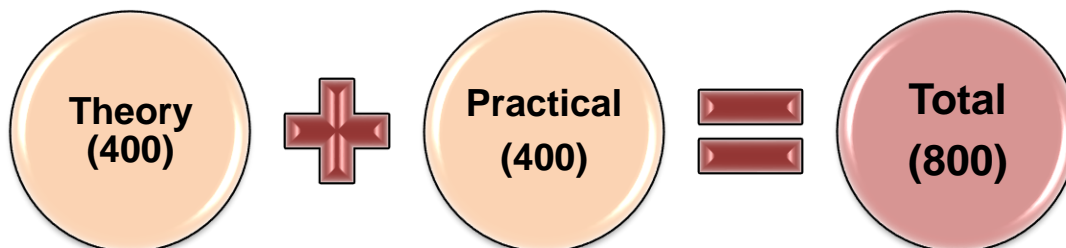
11.2.2 Practical Preliminary / Final Examination Pattern:

Section	Marks	Component
Long Case	1 x 100 = 100	Clinical (300 marks)
Short Cases	2 x 50 = 100	
Ward Rounds	4 x 25 = 100 (One for Communication Skills)	
Surgical Anatomy	15	Viva (100 marks)



Surgical Pathology	15
Radiology	15
Tubes-Catheters, Instruments	20
Operative	25
Pedagogy	10
Total	400

Final Result:



Note:

In order to be declared successful at the Professional Examination, the candidate must score:

- A minimum of 50% marks in Theory and Practical separately.
- A minimum of 40% marks in each Theory Paper

12. Recommended Books:

- Schwartz' Textbook of Surgery
- Short Practice of Surgery by Bailey and Love
- Textbook of Surgery by S.Das
- Pye's Surgical Handicraft
- Recent Advances in Surgery
- Manual of Clinical Surgery



7. Hamilton Bailey's demonstration of clinical signs
8. Sabiston textbook of Surgery
9. Smith's textbook of Urology

13. Recommended Journals:

1. Indian Journal of Surgery
2. American Journal of Surgery
3. British Journal of Surgery
4. Surgical Clinics of North America
5. Annals of Surgery
6. Journal of Gastrointestinal Surgery
7. Journal of Minimal Access Surgery

Prof. Dr. Siddharth P. Dubhashi

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