



NUMS
NATIONAL UNIVERSITY
OF MEDICAL SCIENCES



**MBBS Final Year
Surgery & Allied
National University of Medical Sciences
Pakistan**

**Students Study Guide
CMH Institute of Medical Sciences
(CIMS) Bahawalpur**

CALENDAR OF 1ST YEAR MBBS CLASS
2020 / 2021

Description	Date & Day				Deptt Responsibilities
College Re-Opening	7 June 2021 (Mon)				
Clinical Rotation /Trg Hrs 07 June To 05 Nov 2021 18x Weeks Trg Hrs		07 Jun to 16 July	26 July to 03 Sep	06 Sep to 15 Oct	<ul style="list-style-type: none"> • 06 Weeks each Deptt • Time: 0800hrs onwards • All left over practicals trg to be completed • OSCE trg / Short & Long Case • Annual Assessment for NUMS
	Medicine	Batch A	Batch B	Batch C	
	Surgery	Batch B	Batch C	Batch A	
	Paeds	07-25 June Batch C	26 July to 13 Aug Batch A	06 Sep to 24 Sep Batch B	
Gynae	28 Jun to 16 July Batch C	16 Aug to 03 Sep Batch A	27 Sep to 15 Oct Batch B		
3x Weeks Revision classes		18-22 Oct	25-29 Oct	01-05 Nov	
	Medicine	Batch A	Batch B	Batch C	
	Surgery	Batch B	Batch C	Batch A	
	Paeds	18-19 Oct Batch C	25-26 Oct Batch A	01-02 Nov Batch B	
Gynae	20-22 Oct Batch C	27-29 Oct Batch A	03-05 Nov Batch B		
Eid ul Azha Leave	17-25 July 2021				
Pre Send up Prep Leave	06-14 Nov 2021 (09 Days)				
Send up Exam (Theory)	15 Nov 2021 (Mon) - 0900 hrs		Medicine I		Exam Cell
	19 Nov 2021 (Fri) - 0900 hrs		Medicine II		
	22 Nov 2021 (Mon) - 0900 hrs		Surgery I		
	26 Nov 2021 (Fri) - 0900 hrs		Surgery II		
	30 Nov 2021 (Tue) - 0900 hrs		Gynae		
	04 Dec 2021 (Sat) - 0900 hrs		Paeds		
Viva/OSCE/Short & Long Case	06-10 Dec 2021				Respective Departments
Prep Leave Annual Exam	11 Dec to 13 Jan 2022 (34 Days)				
NUMS Prof Exams	14 Jan 2022				

WEEKLY TIME TABLE
FINAL YEAR MBBS CLASS (2020 / 2021)

	MONDAY Time in hrs							TUESDAY Time in hrs							WEDNESDAY Time in hrs							THURSDAY Time in hrs							FRIDAY Time in hrs							
Batch A Medicine	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	J U M M A B R E A K	7	
Batch B Surgery	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5		7	
Batch C Gynae & Obs	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5		7	
Batch D Pediatrics	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5		7	

KEY

 Behavioral Sciences
 Theory Lectures

 Clinics
 Self-Directed learning

TEACHING HOURS

SUBJECTS	FINAL YEAR	TOTAL
Medicine	500	*900 (at the end of final year)
General Medicine		500
Psychiatry		50
Emergency Medicine		50
Dermatology		50
Cardiology		50
Neurology		50
Pulmonology		50
Nephrology		50
Gastroenterology		50
Surgery	500	*900 (at the end of final year)
General Surgery		*600
Anesthesiology and Critical Care		*50
Orthopedics and Traumatology		*100
Radiology		*50
Surgical Specialties: - Urology (Compulsory) - Neurosurgery/ Spine Surgery/ Pediatric Surgery/ Thoracic Surgery/ Plastic Surgery/ Burn/ Vascular Surgery		50 50
Gynecology and obstetrics	230	*300 (at the end of final year)
Pediatrics	230	*300 (at the end of final year)
Pediatrics		250
Neonatology		50
Behavioral Sciences & Professionalism		*150 (at the end of final year)
Communication Skills		
Professionalism	25	
Leadership and Management		
Medical and Islamic ethics		
Infection control		*25
Patient safety	10	*25 (at the end of final year)
Self-Directed Learning	100	*500 (at the end of final year)
Co-curricular activities	40	*200 (at the end of final year)

Overview

I. Context/Preamble:

Surgery is an important part of the undergraduate curriculum and is taught throughout the five years with increased emphasis in last two years. It focuses on building basics of surgical practice as much as relevant for general practitioner and is built upon an understanding of anatomical structure and functions and its clinical surgical relevance. Allocation of hours is arbitrary and is as per last PMDC regulations and are minimum requirements (600 hrs)

II. Mission

The mission of the Department of Surgery is to provide state of the art educational programs in all areas of clinical surgery and in the biologic basis of surgical illness with a special emphasis on research which will. Moreover, to provide the best possible care to patients who require surgical services. contribute to the practical solutions and theoretical structure of future surgical practice

III. The objective of the program:

The program objective is to establish a foundation for independent practice after graduation as a general practitioner and involves the principal aspects of health improvement, prevention, and acute and chronic care in the domain of surgical disorders.

a- Knowledge:

- 1) Acquisition of the knowledge and the ability to apply it in approach to the common complaints and symptoms in surgical diseases
- 2) Knowledge of generalities of surgical diseases and acquiring the ability to apply it to primary medical care of the patients within the limits of general practitioner's duties
- 3) Acquisition of the knowledge of simple procedures in outpatient setting that the general practitioner must be able to do

b- Skill:

- 1) Ability to take clinical history and do accurate clinical examination in the surgical patients
- 2) Ability to do basic surgical techniques
- 3) Ability to interpret results of common laboratory tests and imaging techniques in surgery

IV. Program Outcome

At the end of final year, student will be able to:

- a. Diagnose common Surgical problems, suggest and interpret appropriate investigation, rationalize treatment plan and if appropriate, refer patient for specialist opinion/management.
- b. Suggest preventive measure for the common Public Health Problem in the community
- c. Perform relevant procedures
- d. Convey relevant information and explanations accurately to patients, families, colleagues and other professionals
- e. Understand medical ethics and its application pertaining to surgery and maintain the confidentiality of the patient.

- f. Adapt research findings appropriately to the individual patient situation or relevant patient population

V. Competencies

- a. Communication skills
- b. Critical thinking
- c. Problem solving
- d. Clinical skills
- e. Examination skills
- f. Procedural skills

VI. Learning Strategies & Situations

A variety of pedagogies are used in this course, including didactic teaching, team-based and evidence-based learning in class rooms and patient side environment. Students are encouraged to adopt and inculcate self-learning strategies during the course

VII. Learning Opportunities

- a. Teaching Ward Rounds
- b. Case presentations
- c. Case based Discussion
- d. Short cases in OPD
- e. Bedside Discussion
- f. Small Group Discussion
- g. Workshops
- h. Self-learning Activities
- i. Skill Lab Activity
- j. Observation of operations in OT

VIII. Venues for learning opportunities

- a. Outpatient clinic
- b. Emergency room
- c. Inpatient ward
- d. Tutorial room
- e. Libraries including audio-visuals
- f. Operation Theatres

IX. Specific Learning Outcomes

Learning outcomes specific to the surgery course have been tabulated below in the table of specification and matched with educational strategies.

Table of Specification (Themes/Topics/Learning outcomes/Educational Strategies/Weightings)

Annex A

X. Implementation of curriculum

*The university will give details of all content including learning outcomes and table of specifications, distribution of which across the three years and rotations is upon the discretion of the medical college/institute. Rotation plan is devised by the institute itself.

All institute to follow PM&DC minimum requirements i.e 840 contact hours with 50% weighting to theory content and 50% to practical/skills

XI. Attendance & Discipline:

- a. A record of attendance of medical students, /test results, end of module/rotation test result, workshop marks should be updated regularly.
- b. Each Head of unit would keep a log of all clinical activities
- c. Attendance of each student would be endorsed in his logbook as well.
- d. Overall 75% attendance is mandatory to appear in final professional exam

XII. Assessment

Assessment is an important aspect of any training program which not only includes assessment of students but also of the training program itself. The performance of each student would be marked and counted towards final internal assessment. The following tools/ methods would be used for this purpose:

a. Theory

• **Periodical class tests**

- **End Modular/End of Rotation Exams:** At the end of each clinical rotation, a theory exam would be held concurrently for the entire class from the syllabus covered during this period.

b. Practical

- **Log Book:** Each student would complete his log book and get it countersigned from HOD at the end of each rotation. Log book is maintained during the rotation
- **CBL performance:** Performance of each student would be marked and sent to Head of Clinical Training
- **End of Rotation Exams:** At the end of each clinical rotation, the whole group would have a clinical exam. **Workshops:** Four workshops for clinical and procedural skills will be held during the rotation. In addition, students will also attend a Basic Life Support (BLS) workshop (**only attendance is required to get marks**)

NOTE: Workshops are essential criteria,

- **If any student misses any of these workshops will not appear in the final exam**

XIII. Evaluation of the Course

- Student portfolio should be maintained in the department in which students should give their feedback either by name or
- anonymously
- Faculty suggestions for improvement of training may be incorporated in the next rotation

XIV. Recommended Readings

- Bailey & Love Short Practice of Surgery
- Browse Introduction to the Symptoms & Signs of Surgical Disease
- Apley's Concise System of orthopedics & Fractures

Table of Specification (Themes/Topics/Learning outcomes/Educational Strategies/ Weightings)

Annex A

SURGERY & ALLIED						
		At the end of each module, student will be able to:				
S.No	Theme/Topic	Course Content	Learning Outcomes		Instructional strategies	Assessment Tools
			Knowledge	Skill/Attitude		
I. Basic Principles of Surgery						
1	Metabolic response to injury	<ul style="list-style-type: none"> • Normal physiology, water loss & intoxication • Physiology of fluids and electrolytes • Pathophysiology of fluids and electrolytes derangements • Acid base balance • ECF loss & Excess, Hyponatremia, Hypernatremia, Hypermagnesiumemia, Hypomagnesiumemia <ul style="list-style-type: none"> ○ Clinical diagnosis ○ Lab diagnosis • Management • Fluid loss reference to: • diarrhea and vomiting 	<ul style="list-style-type: none"> ○ Describe the major fluid compartments of the body, the effect of osmolality ○ Explain what may happen in common conditions (eg acute blood loss, dehydration, excessive fluid replacement). ○ Recognize the different types of fluid used for optimization, especially Hartmann's, Normal 0.9% Saline and Dextrose. 	Assess the volume of body fluid depletion, Administer fluids according to age and comorbid. Calculate the correct volume and rate of administration Monitor the progression of fluid optimization	Lecture/SDL	

		<ul style="list-style-type: none"> • immobile / debilitated • elderly patients with reduced renal function • drugs that lower renal fluid exchange functions • low BMI patients 				
		<p>Nutrition</p> <ul style="list-style-type: none"> • Enteral feeding (Oral, gastrostomy, jejunotomy) Different modes of enteral feeding Its Advantages and Complications • Parenteral nutrition and its complications • Malnutrition in surgical patients • Definition • Assessment • Lab diagnosis • Correction of malnutrition especially pertaining to BMI, serum albumin, frailty or triceps skin fold thickness. 	<p>List the physiological effects of protein-calorie malnutrition.</p> <ul style="list-style-type: none"> • Identify the different types of nutritional support – oral, nasogastric, gastro/jejunotomy and parenteral. • Describe what total parenteral nutrition (TPN) entails, its associated risks, and the additional and parameters of care for these patients. 	<p>Identify patients in need of nutritional optimization.</p>	Lecture/SDL	
2	Perioperative Care	<p>Pre – operative optimization of surgical patients with systemic diseases</p> <ul style="list-style-type: none"> • Types of medical diseases • Assessment of patients 	<ul style="list-style-type: none"> • Rationalize routine intravenous fluid replacement in surgical patients • Identify the commonly prescribed intravenous fluids. 	<ul style="list-style-type: none"> • Counsel the patient about the prognosis of the disease • Manage post – op complications 	Lecture/SDL	

		<ul style="list-style-type: none"> • Subject specialist consultation (Importance) • Optimization • Assessment of risk of surgery 	<ul style="list-style-type: none"> • Optimize management of co morbid. • Describe important complications of common operations 			
		Post- operative care <ul style="list-style-type: none"> • Daily assessment of patient • Day to day patient care • Recognition of potential complications • Diagnosis of complications • Management of post – op complications • Rehabilitation 			Lecture /CBL/SDL	
3	Shock & Blood transfusion	Shock/Classification Hypovolemic Shock Hemorrhage Blood transfusion	<ul style="list-style-type: none"> • Discuss the protocols of blood transfusion • Elaborate principles of blood transfusion of a surgical patient 	<ul style="list-style-type: none"> • Clinically assess hypovolemia • Identify patients in need of fluid optimization/blood transfusion 	Lecture /CBL/SDL	
4	Wound, healing and tissue repair	<ul style="list-style-type: none"> • Wound classification, Mechanism of healing • Factors affecting wound healing • Complications of wound • Hypertrophic scars, keloid 	<ul style="list-style-type: none"> • Describe the process and stages of wound healing. • State primary, secondary and tertiary wound healing. • Justify the reasons for conducting a wound assessment. • Summarize pressure ulcer classification. • State the need to assess pain in wound 	<ul style="list-style-type: none"> • Identify wound bed tissue types. • Describe the skin surrounding the wound reference to underlying disease and the effectiveness of current treatment. • Measure a wound. 	Lecture/SDL	

			<p>care.</p> <ul style="list-style-type: none"> • Explain extrinsic and intrinsic factors which impact on wound healing eg nutrition. • State the basic principles of wound dressing. • Identify patients at risk of pressure sore development 			
5	Surgical infections	<p>Bacteremia, Septicemia, Pyemia, SIRS, Sepsis, MOFS Severe Sepsis & Septic shock.</p> <ul style="list-style-type: none"> • Definitions • Pathophysiology • Diagnosis • Investigations • Management principles <p>Sepsis 6 (BUFALO) recommendations within the first hour to reduce mortality</p> <ul style="list-style-type: none"> • B – blood cultures • U – urine output • F – fluid • A – antibiotics • L -lactate (and hemoglobin) • O – oxygen 	<ul style="list-style-type: none"> • Define the following terms: systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, septic shock, MOFS and acute respiratory distress syndrome(ARDS). • Differentiate between SIRS, sepsis, severe sepsis and septic shock on the basis of signs, symptoms, vital signs, hemodynamic measures and laboratory tests • Explain the seriousness of sepsis • Describe the microbiological causes of sepsis. • Describe the pathophysiology and mechanism of sepsis. • Prioritize for treatment of sepsis. • Explain the role of vasoactive agents in supporting the physiological function of a patient with sepsis. • Select appropriate agent, given details of a patient's condition. • Develop an appropriate monitoring 	<ul style="list-style-type: none"> • Take proper history of patient with sepsis • Perform clinical examination of patient with sepsis • Determine appropriate fluid resuscitation for sepsis with colloids or crystalloids. • Recommend an appropriate antibiotic regimen for treatment of sepsis based on patient characteristics and site of primary infection. • Carry out Sepsis 6 (BUFALO) recommendations within the first hour to reduce mortality 	CBL/SDL	

			<p>program for patients with sepsis.</p> <ul style="list-style-type: none"> List the principles of diagnosis and management of sepsis. State when to involve the infection control team. <p>State when to take appropriate microbiological specimens.</p>	<ul style="list-style-type: none"> Prescribe antibiotic following local guidelines/protocols 		
II. Skin & Subcutaneous tissue						
6	Skin swellings and lumps	<p>Cyst, Dermoid, Papilloma, Fibroma, Bursae, ganglion, Neurofibroma, Schwannoma and Basal Cell Carcinoma</p> <ul style="list-style-type: none"> Classification Clinical features Diagnosis Management 	<ul style="list-style-type: none"> Classify lumps in skin & subcutaneous tissue Differentiate between benign and malignant tumors List the principles of diagnosis and management of lumps in skin & subcutaneous tissue. 	<ul style="list-style-type: none"> Take proper history of patient presenting with skin swelling Perform clinical examination of patient presenting with skin swelling 	Lecture/ CBL/SDL	
7	Sinuses and fistulas	<ul style="list-style-type: none"> Classification Causes Clinical features Diagnosis Management principles 	<ul style="list-style-type: none"> List the principles of diagnosis and management of sinuses and fistula on the basis of its etiology. 	<ul style="list-style-type: none"> Take proper history of patient presenting with sinuses and fistula Perform clinical examination of patient presenting with sinuses and fistula 	Lecture /CBL/SDL	
8	Burn	<ul style="list-style-type: none"> Types of burns Pathophysiology Complications Acute management 	<ul style="list-style-type: none"> Apply basic concepts of burn injury and pathophysiology to the evaluation, resuscitation, clinical management and rehabilitation of the burned patient. 	Assess the appearance of the burn wound in relation to its depth, bacteriologic condition,	Lecture & bedside teaching/SDL	

		<ul style="list-style-type: none"> Reconstruction 	<ul style="list-style-type: none"> Evaluate a burned patient Develop an initial treatment plan for stabilization and fluid replacement using basic principles of burn management. 	healing potential and requirement for intervention.		
9	Ulcer Classification and Management	<ul style="list-style-type: none"> Definition of ulcers Classification of ulcers Pathophysiology of ulcers Definitive diagnosis Treatment plan 	<ul style="list-style-type: none"> List the principles of diagnosis and management of ulcers on the basis of its pathophysiology. 	<ul style="list-style-type: none"> Take proper history of patient presenting with ulcer Perform clinical examination of patient presenting with ulcer 	Lecture /CBL/SDL	
III. Trauma						
10	Trauma and tissue response	<ul style="list-style-type: none"> Types of trauma SIRS Pathophysiology Immediate management Definitive management Complications Rapid primary survey, concurrent resuscitation, secondary survey, continued re-evaluation and monitoring, investigation and definitive care. 	<ul style="list-style-type: none"> Describe the physiological response to injury. State the principles of surgical treatment in a multi-injured patient. Assess priorities during all phases of management following <i>ATLS</i> principles. Justify the importance of re-assessment of the patient with regards to earlier interventions. Emphasize the significance of a patient with polytrauma. Discuss issue of missed injuries, management and documentation. Differentiate between primary and secondary survey. Define triage and its importance. State the importance of analgesia in the 	<ul style="list-style-type: none"> Take proper history of patient presenting with trauma (AMPLE) Perform clinical examination of patient presenting with trauma Provide emergency care with the patient of poly-trauma as per ABCDE protocol 	Primary trauma care course (PTCC) /SDL	lectures/ clinical training

			<p>management of these patients.</p> <ul style="list-style-type: none"> • Differentiate between blunt, penetrating, crush, blast injuries on the basis of mechanisms of trauma • List the interventions that may be required for head injury. • Explain the importance of nerve or vessel injury in trauma. • Elaborate the importance of a continuum of care for the injured patient by a multidisciplinary team • Explain the importance of the <i>ATLS</i> strategy and systematic approach. • Explain the role of radiological investigations (eg CT scanning) and interventions. • Identify the role of investigation and treatment dependent on the hemodynamic status of the patient. 			
11	Trauma to regions	Chest Trauma Broken ribs Pneumothorax	<ul style="list-style-type: none"> • Differentiate between different types of chest injuries based on mechanism of pathophysiology findings, and management. 	<ul style="list-style-type: none"> • Take proper history of patient presenting with chest trauma. • Perform clinical examination of patient presenting with chest trauma. 	CBL & Bedside teaching PTCC/SDL	

		Abdominal Injury	<ul style="list-style-type: none"> Elaborate upon abdominal/ genitourinary injuries reference to causes, signs, symptoms diagnosis, management predisposing factor, complications and preventions Discuss various causes of abdominal injury/ genitourinary trauma Enumerate the most susceptible visceral organs in Abdominal Injury/ genitourinary trauma 	<ul style="list-style-type: none"> Take proper history of patient presenting with abdominal/ genitourinary injury Perform clinical examination of patient presenting with abdominal injury/ genitourinary trauma 	CPC/ PTCC/SDL	
		Genitourinary Trauma				
IV. Radiological Investigations and Diagnosis						
12	Conventional Radiology	X-ray Chest Normal and different pathological conditions like pleural effusion, Pneumothorax, Bronchitis, cardiomegaly, Mitral valve disease, left to right shunts, differentiating pulmonary arterial from pulmonary venous hypertension.	<ul style="list-style-type: none"> Demonstrate knowledge, clinical and technical skills and decision-making capabilities with respect to diagnostic imaging pertinent to the practice of General Surgery State the basic principles of radiation protection and law in relation to use of ionizing radiation Justify use of relevant imaging techniques in various clinical scenarios reference to advantages and disadvantages. 	Differentiate between normal and pathological findings on CXRay	Lecture/CBLs /SDL	
		X-Ray Abdomen free air under the diaphragm. Intestinal obstruction. Barium studies: barium swallow, meal, follow through, enema. Normal gut pattern on plain film and barium studies		Differentiate between normal and different pathological conditions on X Ray Abdomen		Lecture/CBLs /SDL

		<p>Genito Urinary Tract IVU technique, Different phases of IVU. Interpretation of normal IVU. Basic pathologies as obstructive uropathy Hysterosalpingography: technique Normal uterus and fallopian tubes, Abnormal tubes as tubal blockage.</p>		<ul style="list-style-type: none"> • Differentiate between normal and different pathological conditions as renal calculi, bladder calculi • Interpret IVU • Interpret Hysterosalpingography 	Lecture/CBLs /SDL	
		<p>Skull X Ray</p>		<ul style="list-style-type: none"> • Differentiate between normal and abnormal Skull lesions as lytic and sclerotic Calcifications • Identify Pituitary fossa 	Lecture/CBLs /SDL	
		<p>Spine X-Ray Imaging modalities, X Ray projections of spine. Plain X Ray anatomy of spine</p>		Identify X Ray projections of spine. Plain X Ray anatomy of spine	Lecture/CBLs /SDL	
		<p>Bones Modalities for bone imaging Projections. Plain x rays of bones for pathologies as rickets, fractures, neoplastic lesions and how to describe them. Lytic and sclerotic lesions.</p>		Differentiate between normal and different pathological conditions as rickets, fractures, neoplastic lesions and how to describe them. Lytic and sclerotic lesions.	Lecture/CBLs /SDL	

13	Advanced techniques	CT scan & MRI	<ul style="list-style-type: none"> • Compare the benefits and limitations of different radiologic modalities including CT and MRI • List risks associated with radiation exposure • Describe the impact of patient age on radiation sensitivity • Compare the relative radiation dose delivered by different imaging modalities • Discuss the potential complications of intravenous contrast administration for CT and MR exams and identify predisposing risk factors 		Lecture/CBLs /SDL	
V. Paediatric Surgery						
14	Congenital Deformities	<ul style="list-style-type: none"> • Cleft Lip & palate • Reconstructive Surgery 	<ul style="list-style-type: none"> • Relate embryological formation of face/ lip and palate to congenital anomalies • Detail signs, symptoms, treatment options, complications and management of Cleft Lip & palate 	<ul style="list-style-type: none"> • Take history of a patient with Cleft Lip & palate/CTEV • Perform clinical examination of a patient with Cleft Lip & palate/DTEV/ Dysplasia of hip joint 	Lecture/SDL	
		<ul style="list-style-type: none"> • CTEV • Dysplasia of hip joint 	<ul style="list-style-type: none"> • Relate embryological formation of hip joint, foot and palate to congenital anomalies • Detail signs, symptoms, treatment options, complications and management of CTEV and Dysplasia of hip joint 			
15	Congenital anomalies- Skull/Meninges	Hydrocephalus & Meningocele	<ul style="list-style-type: none"> • Describe the common symptoms, signs and management of hydrocephalus and meningocele. 	<ul style="list-style-type: none"> • Take history of a patient with Hydrocephalus & Meningocele 	Lecture/SDL	

				<ul style="list-style-type: none"> Perform clinical examination of a patient with Hydrocephalus & Meningocele 		
16	Congenital anomalies-upper GI	<ul style="list-style-type: none"> Esophageal atresia pyloric stenosis, Hirschsprung's Disease Biliary Atresia 	<ul style="list-style-type: none"> Correlate the embryological origin of upper GI tract with Pathophysiology of Esophageal atresia, pyloric stenosis, Hirschsprung's Disease Differentiate between the Clinical presentation of Esophageal atresia, pyloric stenosis, Hirschsprung's Disease, biliary atresia Propose diagnostic investigations and treatment options in Esophageal atresia, pyloric stenosis, Hirschsprung's Disease, biliary atresia Develop management plan for Complications Esophageal atresia, pyloric stenosis, Hirschsprung's Disease 	<ul style="list-style-type: none"> Take history of a patient with esophageal atresia Perform clinical examination of a patient with esophageal atresia 	Lecture & bedside teaching/SDL	
17	Congenital anomalies-lower GI	<ul style="list-style-type: none"> Neonatal intestinal obstruction Meconium ileus intestinal atresia intussusceptions 	<ul style="list-style-type: none"> Correlate defects in embryologic developments to the causes, types and clinical features, radiological findings of neonatal intestinal obstruction. illustrate the contribution of different imaging modalities in diagnosis of neonatal intestinal obstruction. Develop an approach to the management of neonatal obstruction involving clinical and imaging data. 	<ul style="list-style-type: none"> Take history of a patient with neonatal intestinal obstruction Perform clinical examination of a patient with neonatal intestinal obstruction 	CBL& bedside teaching/SDL	

			<ul style="list-style-type: none"> Identify the surgical intervention and post-surgical complications for neonatal intestinal obstruction. 			
		Imperforate anus	<ul style="list-style-type: none"> identify embryological defect that leads to imperforate anus. Demonstrate approach to diagnosis of imperforate anus. Develop a treatment plan for Imperforate anus based on diagnostic classification and clinical presentation. 	<ul style="list-style-type: none"> Take history of a patient with anal malformations Perform clinical examination of a patient with anal malformations Educate patient/adults about feeding newborns and children with GIT problems 	CBL& bedside teaching/SDL	
18	Congenital anomalies- Urogenital system	<ul style="list-style-type: none"> Undescended testis Hypospadias 	<ul style="list-style-type: none"> Correlate defects in the embryological origin of testes to classification of Undescended testis and its clinical presentation. Suggest Diagnostic investigations and treatment options of Undescended testis Elaborate management plan for possible complications of Undescended testis 	<ul style="list-style-type: none"> Take history of a patient with Undescended testis/hypospadias Perform clinical examination of a patient with Undescended testis/hypospadias. 	Lecture & bedside teaching/SDL	
VI. Orthopedic Surgery						
19	Injuries of Upper limb	Injuries of shoulder and arm Injuries of forearm and hand	<ul style="list-style-type: none"> Identify anatomical features of bones and joints of upper and lower limbs State the general principles of fracture management. 	<ul style="list-style-type: none"> Take history of a patient with fracture 	Lecture & bedside teaching /PTCC/SDL	

20	Injuries of Lower limb	Injuries of pelvis and femur Fracture Neck of Femur Injuries below knee joint	<ul style="list-style-type: none"> • Classify different types of fractures. • State radiological principles in fracture diagnosis. • List complications from fractures. • Describe the basic surgical management of fractures, including femoral neck fractures. 	<ul style="list-style-type: none"> • Perform clinical examination of a patient with fracture 	Lecture/ PTCC/SDL	
21	Open Fracture	Open Fracture	Justify the management of open fractures and soft-tissue injury through surgery	<ul style="list-style-type: none"> • Take history of a patient with open fracture • Perform clinical examination of a patient with open fracture 	Lecture/ PTCC/SDL	
22	Fractures without Displacement	Supracondylar Fracture in children Stress fractures	<ul style="list-style-type: none"> • Describe the cellular process of fracture healing. • State the principles of general management of a fracture. • Differentiate the differences between different types of displaced fractures • Summarize the concept of 'stability' of a fracture • Describe the soft tissue component of a fracture • Identify risk factors for fractures • Classify fractures using different methods including Garland classification 	<ul style="list-style-type: none"> • Take history of a patient with fracture • Perform clinical examination of a patient with fracture 	Lecture/ PTCC/SDL	

			<ul style="list-style-type: none"> • Identify the clinical features requiring emergency management • Suggest appropriate investigations • Elaborate principles of management through open and closed reduction including follow up plan • List potential complications associated with supracondylar fracture 			
23	Joints-Abnormalities	Dislocation of Joints	<ul style="list-style-type: none"> • Describe the management of a dislocated joint 	<ul style="list-style-type: none"> • Take history of a patient with dislocated joint • Perform clinical examination of a patient with dislocated joint 	Lecture/ PTCC	
24	Infections – bone & joint /Soft tissue	Osteomyelitis Pathophysiology. Signs and symptoms. Medical treatment Surgical treatment	<ul style="list-style-type: none"> • Classify pathophysiology signs & symptoms, medical and surgical types of infections of bones and soft joint tissues of Osteomyelitis • Discuss the clinical presentation of osteomyelitis • List the diagnostic and treatment modalities for osteomyelitis. 	<ul style="list-style-type: none"> • Take history of a patient with Osteomyelitis • Perform clinical examination of a patient with Osteomyelitis 	Lecture/ CPC/SDL	
25	Tumors	Bone tumours	<ul style="list-style-type: none"> • classify benign and malignant tumors and soft tissue sarcomas • Choose best diagnostic strategies for appropriate treatment. • Elaborate the surgical interventions for bone tumors and soft tissue sarcomas. 	<ul style="list-style-type: none"> • Take history of a patient with bone tumours • Perform clinical examination of a 	Lecture/SDL	

				patient with bone tumours		
VII. Spine Surgery						
26	Backache	Acute Lumbago Patient's medical work up, referral and physical therapy evaluation	<ul style="list-style-type: none"> Relate functional anatomy to mechanisms for pain production. Differentiate between different types of low back pain based on signs and symptoms Develop management plan for a patient with a Lower back pain. Justify physical therapy as management option. 	<ul style="list-style-type: none"> Take history of a patient with backache Perform clinical examination of a patient with backache Offer recommendations for prophylaxis to patients in acute LBP and when in periods of recovery. Educate patient about compliance & importance of physical therapy. 	CBL/SDL	
		Degenerative Spine Disease	<ul style="list-style-type: none"> Describe the pathogenesis and natural history of degenerative disease of spine. Select appropriate diagnostic tools to interpret the results Identify the patient problems using appropriate clinical examination and radiological studies. Apply evidence based decision making for the management of the patient. Manage post injury and post-operative complications 		Lecture/SDL	
		TB spine	<ul style="list-style-type: none"> Describe the etiology, epidemiology and pathophysiology of inflammatory infectious conditions of the spinal column. Suggest appropriate investigations and laboratory work up to establish case based differential diagnosis. 		Lecture/SDL	

			<ul style="list-style-type: none"> Formulate appropriate evidence based medical and surgical management strategies for inflammatory and infectious disorders of the spinal column, including indication and techniques for urgent surgical intervention. Describe spinal TB its causes, pathophysiology, investigations and treatment options 			
		Spinal Tumour	<ul style="list-style-type: none"> Differentiate between various types of spinal tumors. Assess the patient clinically for accurate treatment and about Post-surgical complications. 		Lecture/SDL	
VIII. Neurosurgery						
27	Tumours brain	SOL Brain & Brain Tumour Brain tumors in the following locations: Cerebellum, Brainstem and Pituitary etc. Brain abscess	<ul style="list-style-type: none"> State relative incidence and location of the major types of primary and secondary brain tumors and space occupying lesions Differentiate between clinical presentations of brain tumors based on their locations: Cerebellum, Brainstem and Pituitary etc. Describe the surgical indications for the most common benign and malignant tumors and also space occupying lesions of brain. List the major differences between the diagnosis and management of brain tumors and abscesses. 	<ul style="list-style-type: none"> Take history of a patient with brain tumours Perform clinical examination of a patient with brain tumours 	Lecture/CBC/SDL	

28	Injuries	Head Injury	<ul style="list-style-type: none"> List the interventions that may be required for head injury. Explain the importance of nerve or vessel injury in trauma. Correlate types of head injury to their pathophysiology. Review the GLASSGOW COMA SCALE Recognize signs in neurologically deteriorating patient. Demonstrate the ABCDE approach and its relation to the avoidance of secondary neurological damage after head injury. Discuss the surgical treatment and complications 	<ul style="list-style-type: none"> Take history of a patient with head injury Perform clinical examination of a patient with injury 	Lecture& bedside teaching/SDL	
	Hydrocephalus Myelo-meningocele Vascular anomalies	Peripheral Nerve Injuries	<ul style="list-style-type: none"> Differentiate between compression and laceration in nerve injury on the basis of pathology presentation Identify historical and current concepts of sensibility retraining in nerve injury. Identify common nerve palsies, rehabilitation phases, treatment approaches and associated problems. Discuss common nerve compression syndromes, anatomical features, provocative tests, differential diagnosis and therapeutic interventions 	<ul style="list-style-type: none"> Perform examination of peripheral nerves Take history of a patient with backache Perform clinical examination of a patient with backache 	Lecture& bedside teaching/SDL	

IX. Vascular Surgery						
29	Ischaemia	Acute limb Ischaemia	<ul style="list-style-type: none"> • Identify clinical manifestations and etiology of acute limb ischemia • Relate the major risk factors to the etiology and pathophysiology of acute limb ischemia. • Elaborate differential diagnosis of acute limb ischemia. • Suggest appropriate investigations to make the diagnosis. • Discuss the medical and surgical management of acute limb ischemia. • Plan appropriate nursing care for the patient of acute limb ischemia. 	<ul style="list-style-type: none"> • Take history of a patient with ischaemia • Perform clinical examination of a patient with ischemia 	Lecture/SDL	
30		Chronic limb ischemia & DVT including but not limited to spiral CT, V/Q, lower extremity Doppler's, D-dimer. including appropriate use and monitoring of heparin and warfarin.	<ul style="list-style-type: none"> • List risk factors for the development of a Deep Vein Thrombosis (DVT)/chronic limb ischemia. • Recognize the signs and symptoms of DVT and chronic limb ischemia. • Generate a prioritized differential diagnosis of DVT/based on specific physical findings using pre-test probability tools • Justify utility of various diagnostic tests based on their interpretation • Develop an appropriate management plan for DVT/CLI. • Develop prophylaxis plan of deep vein thrombosis prophylaxis where indicated. 	<ul style="list-style-type: none"> • Take history of a patient with ischaemia and with swelling of one leg • Perform clinical examination of a patient with swelling of one leg 	Lecture & bedside teaching/SDL	

31	Peripheral Vascular Disease	Varicose Veins	<ul style="list-style-type: none"> • Elaborate clinical presentation, etiology and pathophysiology of varicose veins. • Suggest differential diagnosis based on assessment of patient. • Classify varicose veins. • Rule out the diagnosis of DVT using appropriate investigations. • Suggest conservative or surgical management of varicose veins where indicated. 	<ul style="list-style-type: none"> • Take history of a patient with varicose veins • Perform clinical examination of a patient with varicose veins 	CBL & Bedside teaching/SDL	
		Surgical Complications of DM Diabetic foot ulcer in terms of wound infection, associated soft tissue, or bone involvement, along with the systemic features of sepsis	<ul style="list-style-type: none"> • Elaborate significance of Baseline glycemic control required for surgical procedure • Discuss the complications of DM in Surgical Patient • Identify the Signs and Symptoms of uncontrolled DM in patients • Develop pre-op, and post-op management plan for a diabetic patient. 	<ul style="list-style-type: none"> • Counsel a diabetic patient about foot care • assess the severity of Diabetic foot ulcer • Suggest antibiotic and local treatment for simple ulcers. • Suggest newer and advanced modalities used for management of diabetic foot ulcers 	CBL & Bedside teaching/SDL	
32		Gangrene <ul style="list-style-type: none"> • Definition • Types • Pathophysiology • Clinical features • Diagnosis 	<ul style="list-style-type: none"> • Differentiate between dry and wet gangrene • List the principles of diagnosis and its management 	<ul style="list-style-type: none"> • Take history of a patient with gangrene • Perform clinical examination of a 	CBL & Bedside teaching/SDL	

		<ul style="list-style-type: none"> Management principles 		patient with gangrene		
X. Thoracic Surgery						
33	Infection	Empyema Thoracic	<ul style="list-style-type: none"> differentiate between types of para pneumonic abscess on the basis of etiology. Generate differential diagnosis of empyema thoracic Understand the role of radiographic, endoscopic and laboratory evaluation in the diagnosis Devise a proper management plan including pharmacotherapy and need for surgical intervention Discuss the complications of disease and of surgical procedures for empyema thoracic Propose postoperative follow up plan for the patient 	<ul style="list-style-type: none"> Take history of a patient with empyema thoracic Perform clinical examination of a patient with empyema thoracic 	Lecture & bedside teaching/SDL	
34	SOLs – Mediastinum	Mediastinal masses	<ul style="list-style-type: none"> Generate differential diagnosis of mediastinal mass based on signs and symptoms Devise a management plan for the treatment and diagnosis of mediastinal mass. 	<ul style="list-style-type: none"> Take history of a patient with mediastinal masses Perform clinical examination of a patient with mediastinal masses Counsel the patient about the prognosis and follow up. 	CBL/SDL	

35	Oesophagus	Dysphagia theoretical and practical components of dysphagia management impacting prevention, compensation, and rehabilitation	<ul style="list-style-type: none"> • Identify factors in the patient history that are useful in diagnosing the etiology of dysphagia. • List symptoms that suggest oropharyngeal dysfunction. • List valuable tests in the diagnostic evaluation of dysphagia. • Specify diagnostic tools for dysphagia • Describe the • Suggest common food and liquid modification practices in dysphagia management. • Apply basic concepts to propose management for dysphagia • Explain the intended application/benefit for various swallowing maneuvers and postural adjustments employed in traditional dysphagia management. • Demonstrate understanding of basic exercise principles as applied to dysphagia management. 	<ul style="list-style-type: none"> • Take history of a patient with dysphagia • Perform clinical examination of a patient with dysphagia 	CBL/SDL	
		Ca Oesophagus	<ul style="list-style-type: none"> • Relate cause, risk factors to pathophysiology of Ca Oesophagus. • Classify ca esophagus using TNM classification • Understand the role of grading and staging in assessment of patient • Discuss the role of medical history, clinical evaluation, radiographic procedures, 	<ul style="list-style-type: none"> • Take history of a patient with ca esophagus • Perform clinical examination of a patient with ca esophagus • Counsel the patient about the poor 	Lecture & bedside teaching/SDL	

			<p>endoscopic and laboratory evaluation in the diagnosis</p> <ul style="list-style-type: none"> • Formulate a proper management plan for patient based on stage and grade of cancer • Describe the various treatment options for patients with esophageal cancer, including pre- and post-operative chemo radiation. 	prognosis of the diseases		
		Oesophageal motility disorders	<ul style="list-style-type: none"> • Relate abnormalities of anatomy and physiology of esophagus to etiology and types of motility disorders • generate differential diagnosis of motility disorders based on signs and symptoms. • Propose diagnostic and management plan of patient using conventional and newer treatment modalities 	<ul style="list-style-type: none"> • Take history of a patient with motility disorders • Perform clinical examination of a patient with motility disorders 	Lecture/SDL	
36	Tumors lungs	<p>Ca Lung</p> <p>modalities of treatment including radiotherapy, chemotherapy, surgical and neo adjuvant therapy</p>	<ul style="list-style-type: none"> • identify the causes and risk factors for lung cancer • Advocate measures and guidelines to decrease risk for developing lung cancer and its screening • Discuss the prognostic factors of Ca lung. • Classify tumors based on types, staging and grading • justify the role of radiographic, endoscopic and laboratory evaluation in the diagnosis • Formulate a management plan using various modalities. 	<p>Take history of a patient with Ca lung</p> <p>Perform clinical examination of a patient with Ca lung</p>	Lecture & bedside teaching/SDL	

			<ul style="list-style-type: none"> • Discuss the complications of disease and its treatment 			
XI. Anesthesia						
37	General Anaesthesia	General Anaesthesia	<ul style="list-style-type: none"> • Differentiate between different techniques of anesthesia and airway maintenance • Elaborate the methods of providing pain relief • Devise a plan for management of chronic pain and pain from malignant disease 	Monitor the patient under general anesthesia	Lecture/ Demo/SDL	
38	Regional & Spinal Anaesthesia	Regional & Spinal Anaesthesia	<ul style="list-style-type: none"> • Discuss the local and regional anesthesia techniques • List the various techniques for regional anesthesia administration • Choose appropriate type of anesthesia for various surgical procedures • Discuss the pre-anesthesia workup required for regional/spinal anesthesia • list the complications resulting from regional/spinal anesthesia 	Monitor the patient under regional/spinal anesthesia	Lecture/ Demo/SDL	
39	Pain Relief	Pain Relief in benign and malignant diseases	<ul style="list-style-type: none"> • Relate different types of pain to its pathophysiology. • Outline various methods for pain relief in benign and malignant diseases • Discuss the various methods used for pain relief in different diseases 	<ul style="list-style-type: none"> • Take history of a patient with pain • Perform clinical examination of a patient with pain • Counsel the patient with pain 	Lecture/ Demo/SDL	

XII. Head & neck						
40	Disorders of salivary glands	Infections, obstruction, benign and malignant neoplasms of the salivary glands.	<ul style="list-style-type: none"> Recognize the clinical features of infections of the salivary glands. List the relevant information to be elicited during history taking from patients with salivary gland disorders. differentiate on clinical grounds between infection, obstruction, benign and malignant neoplasms of the salivary glands. Suggest relevant investigations to help in the diagnosis of salivary gland disorders. Evaluate the results of the investigations done for disorders of the salivary glands. Describe treatment procedures and their indications and potential complications of treatment procedures. 	<ul style="list-style-type: none"> Take history of a patient with swelling on sites of salivary glands Perform clinical examination of a patient with swelling relevant to salivary gland 	Lecture/SDL	
41	Mass neck	Evaluation of mass neck neoplastic, inflammatory, congenital	<ul style="list-style-type: none"> Devise a systematic plan to evaluate a patient with a neck mass Classify neck masses, according to etiology Diagnose neck mass based on history, clinical examination basic laboratory tests and radiologic examinations. Suggest special examinations of the nasopharynx and larynx where required Develop an appropriate differential diagnosis and provisional diagnosis Justify the role of surgery for adult neck mass 	<ul style="list-style-type: none"> Take history of a patient with a neck mass Perform clinical examination of a patient with a neck mass 	CPC/SDL	

XIII. Breast and Endocrine						
42	Breast Lump	Benign Breast Disease	<ul style="list-style-type: none"> Classify Benign Breast Disease Diagnose Benign breast disease based on history and clinical presentation Enumerate the Diagnostic investigations of Benign Breast Diseases Design management plan for Benign Breast Disease and its complication 	<ul style="list-style-type: none"> Take history of a patient with breast lump Perform clinical examination of a patient with breast lump 	Lecture & bedside teaching /CBL/SDL	
		Ca Breast	<ul style="list-style-type: none"> Suggest management plan for Ca breast and its complications applying basic concepts of anatomy and lymphatic drainage of the area. Diagnose Ca Breast based on signs and symptoms and investigations 	<ul style="list-style-type: none"> Counsel the patient about the importance of completion of treatment 		
43	Thyroid swelling	Simple Goitre Toxic Goitre/ Thyrotoxicosis	<ul style="list-style-type: none"> Corelate the clinical presentation of simple and toxic goiter to anatomical and physiological basis of thyroid gland Suggest the diagnostic investigations needed to rule out other thyroid conditions Enumerate the Treatment options for goiter Propose management plan for goitre and its complications. 	<ul style="list-style-type: none"> Take history of a patient with neck /thyroid swelling Perform clinical examination of a patient with neck /thyroid swelling Counsel the patient about the progression of disease 	Lecture & bedside teaching/SDL	
		Ca Thyroid	<ul style="list-style-type: none"> Diagnose Ca thyroid based on clinical presentation and investigations Classify Ca Thyroid List tumor markers for Ca Thyroid 			

			<ul style="list-style-type: none"> Develop management plan for Ca Thyroid and its Complications 			
44	Parathyroid glands	Disorders of Parathyroid glands	<ul style="list-style-type: none"> Diagnose disorders of parathyroid based on clinical presentation and investigations Develop management plan 	<ul style="list-style-type: none"> Take history of a patient Perform clinical examination of a patient 	Lecture/CBL/SDL	
45	Adrenal glands	Disorders of Adrenal glands	<ul style="list-style-type: none"> Diagnose disorders of adrenal glands based on clinical presentation and investigations Develop management plan 	<ul style="list-style-type: none"> Take history of a patient Perform clinical examination of a patient 	Lecture/CBL/SDL	
XVI. Abdomen						
46	Acute Abdomen	<ul style="list-style-type: none"> Acute intestinal obstruction Acute peritonitis Acute Appendicitis Acute Cholecystitis Intestinal perforation Abdominal aortic aneurysm Acute Diverticulitis. Duodenal ulcer perforation <p>Radiological diagnosis</p> <ul style="list-style-type: none"> complications that can result from small bowel obstruction including: ischaemia, perforation and biochemical derangement. 	<ul style="list-style-type: none"> Describe the symptoms, signs, and differential diagnosis for patients presenting with an acute abdomen. Discuss the investigations and management of patients with acute abdominal pain Choose the appropriate imaging in the investigation of acute abdominal pain Generate differential diagnoses for small bowel obstruction. Summarize complications that can result from small bowel obstruction Describe the pre-and postoperative management of an acutely unwell patient 	<ul style="list-style-type: none"> Take history of a patient with acute abdomen Perform clinical examination of a patient with acute abdomen 	Lecture/CBL & bedside teaching/SDL	

		<ul style="list-style-type: none"> Difficulties with fluid management and electrolyte derangements, including oliguria and acute kidney injury. 	<ul style="list-style-type: none"> who requires emergency surgery. evaluate the difficulties with fluid management and electrolyte derangements Demonstrate understanding of pathological basis of appendicitis, acute pancreatitis, acute cholecystitis, abdominal aortic aneurysm and diverticular disease. Assess the indications for surgery and other treatment options 			
47	Chronic abdomen	Mass Abdomen	<ul style="list-style-type: none"> outline relevant investigations for abdominal swelling due to various pathological causes. Describe the aetiology, presentation and management of intestinal obstruction. Generate differential diagnosis, and management of patients presenting with a left iliac fossa mass. provide the pathophysiological basis of a swelling in the epigastrium Justify the need for emergency care Evaluate the role of surgery in patient with mass abdomen 	<ul style="list-style-type: none"> Take history of a patient with mass abdomen Perform clinical examination of a patient with mass abdomen 	CBL & Bedside teaching/SDL	
		Colorectal Carcinoma	<ul style="list-style-type: none"> Discuss the pathological basis of Ca colon Elaborate specific Tumor markers Elaborate the staging of ca colon 	Take history of a patient with colorectal cancer	CBL & Bedside teaching/SDL	

			<ul style="list-style-type: none"> • Diagnose Ca colon and chronic abdomen based on clinical presentation • Develop management and prevention of Ca Colon and chronic abdomen and their associated complications plan for 	Perform clinical examination of a patient with colorectal cancer		
		Intestinal tuberculosis	<ul style="list-style-type: none"> • Explain the Pathophysiological basis of abdominal TB • Diagnose TB based on clinical features and investigations • Formulate a differential diagnosis • evaluate the role of anti-tuberculous therapy in patient management • Justify the use of appropriate surgical procedures in management of this disease. • Formulate management plan for complications 	Take history of a patient with Intestinal tuberculosis Perform clinical examination of a patient with Intestinal tuberculosis	CBL & Bedside teaching/SDL	
48	Abdominal Wall, Hernias	<ul style="list-style-type: none"> • Inguinal Hernia • Femoral hernia • Ventral Hernias 	<ul style="list-style-type: none"> • Differentiate between direct, indirect, incarcerated and strangulated hernias • Develop a differential diagnosis in a case of a mass in the inguinal or femoral region, or in the scrotum, making reference to those features which may distinguish hernias from other soft tissue masses. • Discuss the various investigations that help in diagnosis • Describe the principles of a surgical repair of a direct and indirect inguinal hernia • Describe the complications of untreated abdominal wall defects 	<ul style="list-style-type: none"> • Take history of a patient with mass in the inguinal or femoral region, or in the scrotum • Perform clinical examination of a patient with mass in the inguinal or femoral region, or in the scrotum 	CBL & Bedside teaching/SDL	

XIV. Hepatobiliary Surgery						
49	Liver – SOL liver	Amoebic liver, Hydatid disease & Liver Carcinoma	<ul style="list-style-type: none"> • Generate differential diagnosis of SOL Liver • Develop plan for diagnosis, treatment and prevention of SOL liver and its complications 	Take history of a patient with SOL liver Perform clinical examination of a patient with SOL liver	Lecture/SDL	
50	Stones in biliary tract	Cholelithiasis	<ul style="list-style-type: none"> • Discuss the Etiology of Cholelithiasis with relevance to anatomical and pathological basis • Understand the Clinical presentation of Cholelithiasis • Elaborate the clinical significance of Charcot triangle • Diagnose cholelithiasis based on clinical presentation and investigations • Manage cholelithiasis and its complications 	Take history of a patient with cholelithiasis Perform clinical examination of a patient with cholelithiasis Counsel the patient about planning surgery before it leads to complications	Lecture & bedside teaching/SDL	
		Obstructive jaundice	<ul style="list-style-type: none"> • provide physiological and anatomical basis of different types of jaundice • Diagnose obstructive jaundice on the basis of clinical presentation and diagnostic tests • Plan management of obstructive jaundice and its complications 	Take history of a patient with obstructive jaundice Perform clinical examination of a patient with obstructive jaundice	Lecture & bedside teaching/SDL	
51	Inflammation	Acute and Ch Cholecystitis	<ul style="list-style-type: none"> • Discuss causes of Cholecystitis • Relate structural anomalies and pathological changes to predisposition to cholecystitis 	<ul style="list-style-type: none"> • Take history of a patient with chronic cholecystitis • Perform clinical examination of a 	CBL & Bedside teaching/SDL	

			<ul style="list-style-type: none"> • Discuss the Signs and Symptoms • Discuss the diagnosis and management • Discuss the emergency and elective approach to management of Cholecystitis, and its complications. 	patient with chronic cholecystitis		
52	Surgical intervention- Laparoscopic Surgery	Principles of Laparoscopic Surgery	List the general principles of laparoscopic surgery and its complications		Lecture/ Demo/SDL	
XV. Upper GI Surgery – Stomach/Intestine/Pancreas						
53	Upper GI bleed/ Hematemesis	Differential diagnosis with management of Upper GI bleed <ul style="list-style-type: none"> • duodenal ulcer, gastric ulcer, gastric erosions, oesophageal varices, Mallory Weiss tear and oesphagogastric cancer. 	<ul style="list-style-type: none"> • State the pathophysiological basis of common causes of upper GI bleeding • Discuss the Immediate Management of Upper GI Bleed • Enumerate the Criteria for admission of Upper GI Bleed • Discuss the fluid resuscitation of Upper GI Bleed • Diagnose Upper GI Bleed • Elaborate the preventive methods of Upper GI Bleed • Elaborate the Complications of and their management 	<ul style="list-style-type: none"> • Take history of a patient with Hematemesis • Perform clinical examination of a patient with Hematemesis 	Lecture /CPC/SDL	
54	Tumors	Ca stomach	<ul style="list-style-type: none"> • Discuss the causes of Ca stomach • Discuss the warning signs which lead to the diagnosis of Ca stomach 	Take history of a patient with Ca stomach	Lecture & bedside teaching /CBL/SDL	

			<ul style="list-style-type: none"> • Discuss the presenting complaints of Ca stomach • list the investigations needed to diagnose the case • Describe the staging and grading of cancer. • Describe the management plan for a patient with Ca stomach 	Perform clinical examination of a patient with Ca stomach		
		Ca Pancreas	<ul style="list-style-type: none"> • Discuss the etiology of Ca Pancreas • Discuss the Clinical Presentation of Ca Pancreas • Enumerate the Signs and symptoms of Ca pancreas • Discuss diagnostic criteria for Ca Pancreas • stage the cancer • Plan the treatment of Ca Pancreas and its complications 	<p>Take history of a patient with Ca Pancreas</p> <p>Perform clinical examination of a patient with Ca Pancreas</p>	Lecture/CBL/SDL	
55	Inflammation	Acute and Ch Pancreatitis	<ul style="list-style-type: none"> • Diagnose pancreatitis using Ranson and Glasgow criteria • Enumerate causes of pancreatitis and its predisposing factors • Elaborate the Diagnosis of pancreatitis based on its signs and symptoms • Manage pancreatitis and its complications 	<p>Take history of a patient with Ca lung</p> <p>Perform clinical examination of a patient with chronic pancreatitis</p>	CBL & Bedside teaching/SDL	
XVI. Lower GI Surgery – Appendix/Colon/Rectum/Anal Canal						
56	Change in bowel habit / rectal bleeding	colorectal cancer, diverticular disease, haemorrhoids, anal fissures and inflammatory bowel disease	<ul style="list-style-type: none"> • Explain the aetiopathology of the common causes of rectal bleeding. • List the common causes of diarrhoea and constipation. 	<ul style="list-style-type: none"> • Take history of a patient with change in bowel habit / rectal bleeding 	Lecture & bedside teaching/CBL/SDL	

			<ul style="list-style-type: none"> • Relate the signs and symptoms for colorectal cancer and its underlying pathology • Explain the management for rectal bleeding, including relevant investigations and the indications for surgical intervention. 	<ul style="list-style-type: none"> • Perform clinical examination of a patient with change in bowel habit / rectal bleeding 		
57	Abscess/Fissure	Perianal Abscess Anal fissure	<ul style="list-style-type: none"> • Correlate the etiology and pathophysiology of perianal abscess/ fissure to its clinical presentation • make an appropriate differential diagnosis on the basis of clinical presentation • Review the surgical anatomy of anal region and classification of anal abscess/ fissure • Develop a plan for work up, management and postop care of a patient with perianal abscess. 	<ul style="list-style-type: none"> • Take history of a patient with perianal abscess • Perform clinical examination of a patient with abscess/ fissure 	Lecture & bedside teaching/SDL	
58	Fistula	Fistula in ano	<ul style="list-style-type: none"> • Explain the etiology and pathophysiology of anal fistula • make an appropriate differential diagnosis based on patient presentation • Develop a plan for work up, management and postop care of a patient with fistula in ano 	<ul style="list-style-type: none"> • Take history of a patient with anal fistula • Perform clinical examination of a patient with anal fistula 	Lecture & bedside teaching/SDL	
XVII. Urology						
59	Haematuria	Haematuria originating at different levels of urinary tract	<ul style="list-style-type: none"> • Identify basis for diagnosing hematuria. • Recognize those pigments that may discolor the urine, mimicking hematuria. 	<ul style="list-style-type: none"> • Take history of a patient with hematuria 	Lecture & bedside teaching/SDL	

			<ul style="list-style-type: none"> • Give a differential diagnosis for hematuria originating in the different anatomical parts of the urinary tract. • justify the significance of the information gathered from the palpation of the prostate rectally. • List the radiological investigations available for the assessment of the urinary tract • Manage the patient with visible and non-visible hematuria. 	<ul style="list-style-type: none"> • Perform clinical examination of a patient presenting with hematuria 		
60	Urinary Obstruction and Urological emergencies	<ul style="list-style-type: none"> • Diagnostic modalities • Levels of obstruction • Acute urethral obstruction • Bladder Outlet Obstruction • Urolithiasis 	<ul style="list-style-type: none"> • Differentiate between obstruction at different levels of the urinary tract based on history, Clinical features and diagnostic modalities • Discuss the presenting features, signs and symptoms of urological emergencies • Generate a prioritized differential of the most important and likely causes of a patient's emergency • Study the classification of urological emergencies based on etiology • Discuss the appropriate investigations leading to a definite diagnosis • Devise a management plan according to clinical presentation 	<ul style="list-style-type: none"> • Take History of a patient with hematuria • Perform clinical and examination of a patient with hematuria • Take history of a patient and perform clinical examination of a patient acute urethral obstruction/urolithiasis. 	Lecture/CBL/ Demo/SDL	

61	Tumours	<ul style="list-style-type: none"> • Renal cell carcinoma and • Transitional cell carcinoma • Basal cell carcinoma 	<ul style="list-style-type: none"> • Review the epidemiology and causes • List the risk factors for carcinoma of urinary tract • Outline the initial diagnostic workup for patients suspected of having carcinoma of urinary system • Discuss the grading and staging of carcinoma of urinary tract • Plan the general management and pre-operative workup of patient • Suggest the potential options for treatment of carcinoma of urinary tract • Implement effective treatment options for advanced and metastatic basal cell carcinoma (BCC) based on efficacy data and current guidelines. 	<ul style="list-style-type: none"> • Take history of a patient with carcinoma of urinary tract • Perform clinical examination of a patient with carcinoma of urinary tract • Counsel the patient about the completion of treatment and prognosis of disease 	Lecture/ CBL/SDL	
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**Procedural skills to be acquired in clinical training (not included for the current batch)
At the end of clinical rotation, student should be able to:**

Learning Outcomes	Procedure (minimum no required)
Year III	
Assists	Foley's catheterization (10)
Assists	Passage of Nasogastric Tube (5)
Assists	Antiseptic Dressing (10)
Performs under direct supervision	Intravenous Line (10)
Performs under direct supervision	Intra Muscular Injection (10)
Performs under direct supervision	Subcutaneous Injection (5)
Year IV	
Assists	Application of POP(5)
Assists	Endotracheal intubation (3)
Assists	Lumbar puncture/ Spinal Anaesthesia(3)
Assists	Stitching of wounds(5)
Performs under direct supervision	Intravenous Line (10)
Performs under direct supervision	Foley's catheterization (10)
Performs under direct supervision	Passage of Nasogastric Tube (5)
Performs under indirect supervision	Intra Muscular Injection (10)
Performs under direct supervision	Subcutaneous Injection (5)
Performs under direct supervision	Taking blood samples(5)
Performs under direct supervision	Removal of surgical drains(5)
Performs under indirect supervision	Antiseptic Dressing (10)
Year V	
Assists	Chest tube insertion (2)
Assists	Venous cut down (3)
Assists	Application of POP(5)
Assists	FNAC/True cut biopsy(2+2)
Performs under direct supervision	Intravenous Line (10)
Performs under direct supervision	Foley's catheterization (10)
Performs under direct supervision	Passage of Nasogastric Tube (5)
Performs under direct supervision	In growing toe nail (3)
Performs under direct supervision	Circumcision (3)
Performs under direct supervision	Excision biopsy under local anaesthesia (3)
Performs under direct supervision	Contrast Xray studies (5)
Performs under indirect supervision	Endotracheal intubation (3)
Performs under indirect supervision	Lumbar puncture/ Spinal Anaesthesia(3)
Performs under indirect supervision	Stitching of wounds(5)
Performs under indirect supervision	Taking blood samples(5)
Performs under indirect supervision	Removal of surgical drains(5)

FINAL PROF MBBS EXAMINATION (2020)**(SURGERY PAPER-I)**

Time Allowed	=03 hrs. (Including MCQs)	
Marks of theory paper	=65	
Total marks	=135	
70 x MCQs	(70 Marks)	Time =1 hour and 20Mins
Q. No. 1,2,3,4,5,6,7,8,9		
3x SAQs/SEQs (Recall)	= 07 marks each	
6 x SAQs/SEQs (Application)	= 2 x 08 marks each, 4 x 07 marks each	
Total Marks	= 65 Marks	Time = 1 hour and 40 Mins

Theme/Module	Sub-Theme	NUMBER OF MCQs (70) Recall: 14 Application: 56 (1 mark each)	NUMBER OF SAQs/SEQs (09)
Basic Principles of Surgery	Metabolic response to injury Perioperative Care Shock & Blood transfusion Wound, healing and tissue repair Surgical infections	06	1
Skin & Subcutaneous tissue	Skin swellings and lumps Sinuses and fistulas Burn Ulcer Classification and Management	05	1
Trauma	Trauma and tissue response Trauma to regions (chest, abdomen, genitourinary)	10	1
Radiological Investigations and Diagnosis	Conventional Radiology (X-ray) Advanced techniques (CT and MRI)	04	1
Pediatric Surgery	Congenital Deformities Congenital anomalies- Skull/Meninges Congenital anomalies- upper GI Congenital anomalies- lower GI Congenital anomalies- Urogenital system	08	1
Orthopedic Surgery	Injuries of Upper limb Injuries of Lower limb Open Fracture Fractures without Displacement Joints- Abnormalities Infections –bone & joint /Soft tissue	09	1

	Tumors		
Spine Surgery	Spinal injuries Degenerative disease of spine Spinal infections Spinal tumors Spinal deformities	04	1
Neurosurgery	Tumours brain Infections Injuries (head and peripheral nerve) Hydrocephalus Myelo-meningocele Vascular anomalies	06	
Vascular Surgery	Arterial Venous Lymphatic	08	1
Thoracic Surgery	Infection (empyema) SOLs –Mediastinum Oesophagus Tumors lungs	08	1
Oncology	Principles of radiotherapy Principles of chemotherapy	02	
Total		70 (70 Marks)	09 (65 Marks)

FINAL PROF MBBS EXAMINATION (2020)

(SURGERY PAPER-II)

Time Allowed	=03 hrs. <i>(Including MCQs)</i>	
Marks of theory paper	=65	
Total marks	=135	
70 x MCQs	(70 Marks)	Time =1 hour and 20Mins
Q. No. 1,2,3,4,5,6,7,8,9		
3x SAQs/SEQs (Recall)	= 07 marks each	
6 x SAQs/SEQs (Application)	= 2x 08 marks each, 4x 07 marks each	
Total Marks	= 65 Marks	Time = 1 hour and 20Mins

Topics	Sub-Theme	NUMBER OF MCQs (70) Recall: 14 Application: 56 (1 mark each)	NUMBER OF SAQs/SEQs (09)
Anesthesia	General Anaesthesia	05	1
	Regional & Spinal Anaesthesia		
	Pain Relief		
Head & Neck Surgery	Disorders of salivary glands	04	1
	Mass neck		
Breast and Endocrine	Breast Lump	07	1
	Thyroid swelling		
	Parathyroid glands		
	Adrenal glands		
Acute & Chronic Abdomen		08	1
Hepatobiliary Surgery	Liver – SOL liver	08	1
	Stones in biliary tract		
	Inflammation		
	Surgical intervention-Laparoscopic		
	Surgery		

Abdominal Wall, Hernias		08	1
Upper GI Surgery – Stomach/Intestine/Liver/Pancreas	Upper GI bleed/ Hematemesis Tumors Inflammation	11	1
Lower GI Surgery – Appendix/Colon/Rectum/Anal Canal	Change in bowel habit / rectal bleeding Abscess/Fissure Fistula	11	1
Urology	Haematuria Urinary Obstruction and Urological Emergencies Tumours	08	1
Total		70 (70 Marks)	09 (65 Marks)

Proposed Table of Specification for 2020

(Surgery)

Practical

Max Marks = 270

Internal Assessment = 30

Grand Total = 300

Pass Marks = 150

CYCLE I (OSCE)												CYCLE II (in ward)				
8 x Non-Observed Static Stations								04 x Observed Static Station				04 x Short Case				1 x Long Case Observed & Structured
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	
Procedural skills/Diagnostic skills/ Management skills								Management skills				Com skill	Exam skills			
DI	TP	IATF						TP	TP	TP	OC	CE				HT, CE, Clinical reasoning
Principles of surgery. Nutrition, fluid, electrolytes, Blood transfusion etc	Pre Op. assessment, preparation, co. morbid etc	Endocrines/ Sal. Glands, Thyroid, Breast etc	X Rays Contrast Studies / CT/ MRI	Lab investigations interpretation eg LFTs, RFTs Thyroid test etc	Resuscitation e.g Burns, dehydration, Post Op. Complications	Anaesthesia / Critical care	General Surgery (hepatobiliary surgery)	General Surgery (, Pre & Post op management)	BLS/ ACLS/ ATLS	General Surgery (Instruments, Devices, CVP, sutures)	Counselling	General Surgery	General Surgery/ Any speciality of surgery	Urology / Any speciality of surgery	Orthopedic Surgery & Traumatology	Focused History & Examination/ investigation plan & Management plan

10	10	10	10	10	10	10	10	10	10	10	10	20	20	20	20	70
80 Marks								40 Marks				80 Marks				70 Marks
5 minutes for each station 12 x 5 = 60 Minutes For 25 students = 125 Minutes= 2hrs 5 minutes												5 minutes for each station For 04 students: 20 minutes For 25 students = 140 Minutes= 2hrs 20 minutes				Two parallel long case <ul style="list-style-type: none"> • 15 minutes for each student • For 13 students :15 x 13 = 3hours 25 minutes
Number of rest stations depends upon the number of students																

Communication: HT=Focused History Taking, OC=other communication.

- **Examination:** CE = Clinical examination, SI= Sign Identification.
- **Procedural skills:** DP=Diagnostic Procedure, TP=Therapeutic Procedure, IATF=Identification of Abnormal Test Finding, DI = Data Interpretation

INTERNAL ASSESSMENT CALCULATION FOR THEORY PAPER

Internal Assessment	
Periodical class tests / End of module /rotation exam	30 Marks

INTERNAL ASSESSMENT CALCULATION FOR PRACTICAL

Internal Assessment	
Log book/CBL performance/ End of module /rotation practical Exam/OSCE/ Workshop	30 Marks