

**THE UNIVERSITY OF JORDAN**  
**FACULTY OF MEDICINE**  
**DEPARTMENT OF GENERAL SURGERY**

Course Outline

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| <b>Classification:</b>                 | Medicine                        |
| <b>Course Code:</b>                    | 0507401                         |
| <b>Course Title:</b>                   | General Surgery-1               |
| <b>Year Level :</b>                    | 4 <sup>th</sup> . Year          |
| <b>Round Schedule:</b>                 | Arranged by individual teachers |
| <b>Duration (Weeks):</b>               | 12 Weeks                        |
| <b>Tutorial Schedule</b>               | 8am-5pm (sun-thurs)             |
| <b>Credit Hours</b>                    | 13.5                            |
| <b>Course Coordinator</b>              | Dr. Nader Albsoul               |
| <b>Prepared by:</b>                    | Dr. Nader Albsoul               |
| <b>Date of Outline Preparation:</b>    | 19-05-2005                      |
| <b>Date of Last Revision:</b>          | 29-11-2012                      |
| <b>Checked by:</b>                     | Members of Department           |
| <b>Approved by Head of Department:</b> | Dr. Nader Albsoul               |

## **I. Rotation Description**

The twelve-week surgical rotation is designed to help the student understand the basic principles of surgery. It will help the student to improve their ability to question and examine patients and to construct an appropriate problem list and plan of action.

Daily rounds and faculty/preceptor interactions give students the opportunity to discuss patient problems in detail. Time is spent on the wards, in outpatient clinics, and in the operating room. The material presented, and the manner in which it is taught, have been designed to include the “core” material in surgery that should be known to all physicians.

Our students rotate in different hospitals with the same standards and level of equipment and facilities.

## **II. Rotation Objectives**

### **General objectives**

- This course is designed to provide students with basic and clinical knowledge and skills necessary to deal with common surgical problems.
- Helping students become clinically oriented in approaching surgical emergencies safely and effectively.
- Building Trust in students to deal with surgical patients in a professional manner.

### **Specific objectives**

- **Cardiovascular and Thoracic Surgery**

This is a two-week rotation applied through the 4<sup>th</sup> medical year concerning about Cardiovascular and Thoracic Surgery. The rotation includes reasonable exposure to general surgery and critical care management, pertinent with Cardio Vascular and Thoracic Surgery; so students expand their knowledge of surgical conditions and gain the ability to apply this knowledge in the clinical setting. This rotation setting is most often inpatient, but in some cases may be in an ambulatory clinic.

1. Describe the etiology, pathophysiology, clinical presentation, and prevention of common cardiovascular diseases
2. Emphasis on history taking and physical examination skills.
3. Obtain and/or utilize medical histories, physical findings, laboratory tests, and data to select and recommend optimal management for individual patients as necessary.
4. Attend Out-patient clinics and to be able to present inpatients during rotations.

- **Oncology Surgery**

This is a two weeks rotation applied through the 4<sup>th</sup> medical year, students gain experience in clinical oncology through breast clinics, tumor clinics, and inpatient rounds. This clinical experience is intended to provide the student with basic experiential training in providing care for oncology patients.

1. Identify the different types and aims of surgical intervention in cancer patients
2. Perform a complete history and physical examination, with emphasis on sensitive issues regarding patients' emotions, and conducting appropriate differential diagnosis.
3. Arrive at an acceptable plan of management and demonstration of knowledge of the appropriate operative and non-operative management of the disease process.
4. Understand the outpatient management of cancer patients in the ambulatory setting and demonstration of knowledge of common office techniques and procedures.
5. The ability and willingness to work in a cooperative manner with other healthcare personnel, being sensitive to their roles and abilities, and to be able to give and receive advice in a manner that is consistent with the harmonious operation of a health care team
6. Honesty, reliability, and respectfulness in working with patients and colleagues alike.

- **Plastic Surgery**

The 2 weeks plastic surgery rotation is an intense clinical experience that introduces students to the basic principles of plastic surgery. Students rotate on the Surgical Teams at Jordan university hospital where they attend from 8am to 5pm 5 days a week. Time is spent on the wards, in outpatient clinics, and in the operating room.

1. Sharpened history taking and physical examination skills.
2. Ability to describe different skin lesions and some congenital facial anomalies
3. Ability to recognize different types of burns and to know the degree of burn
4. Confidence in presenting assigned patients in rounds.
5. Know the physiology and pathophysiology of wound healing
6. Overview of commonly used surgical technique in plastic surgery
7. Knowledge of skin grafts and flaps (types, indications ,complication)

- **Gastrointestinal Surgery**

The 2-week gastroenterological surgery rotation is an intense clinical experience that introduces students to the basic principles of gastroenterological surgery. Exposing them to inpatients by taking history, performing physical examinations, accessing patients' files, checking their labs then presenting all that in teaching rounds and seminar rooms. Students are part of our surgical GI team in outpatient clinics also, taking histories and performing physical examinations, discussing the treatment options with the team. During these 2 weeks students visit operation rooms to observe some common GI operations. Faculty members provide students with regular feedback, advice, and direction.

1. Obtain an accurate GI history, covering essential medical, personal, and socioeconomic considerations.
2. Perform accurate GI physical and behavioral health examinations appropriate to patient presentation.
3. Construct a prioritized differential diagnosis for common GI presenting complaints.
4. Construct and present a clinical assessment and treatment options for common GI diseases.
5. Explain and demonstrate the practice of informed consent in patient care.

- **Endocrine and Head and Neck Surgeries**

The 2-week endocrine and head & neck surgery rotation for 4th year medical students is a clinical experience that introduces students to basic principles of surgery and related problems. Its curriculum is defined by learning objectives and encompasses inpatient-hospital and outpatient-office experiences. During the clerkship, students evaluate and follow patients. Daily rounds and faculty/preceptor interactions give students the opportunity to discuss patient problems in detail. Faculty members provide students with regular feedback, advice, and direction.

1. Obtain a full endocrine and head & neck history and performing a comprehensive physical examination.
2. Being able to Interpret basic lab findings and connect them to the patient condition
3. Discuss the surgical cases assigned to them, regarding management & follow up. Along with suggesting management plans for patients.
4. Attending the endocrine surgery clinic along with the residents.
5. Demonstrate personal attributes of respect, compassion, honesty, dedication, motivation, perseverance, dependability, tolerance and adaptability with pt., their families and those with whom they work.

- **Pediatric Surgery\***

**\*Note:** This rotation is only for 6<sup>th</sup> year medical students and will not be attended by 4<sup>th</sup> year medical students

### **III. Rotation Expected Outcomes**

Upon completion of the course, students shall demonstrate the ability to:

- Perform a complete history and physical exam on patients with varied surgical diagnoses in the inpatient and outpatient setting.
- Be able to review a chart, and present an accurate case presentation to an attending or resident.
- Identify preoperative issues in patients who are candidates for surgery.
- Essential skills to be learnt:
  - Tie a two-handed knot
  - Removes sutures and staples
  - Recognize proper and improper healing and signs of wound infection.

### **IV. Suggested Textbook(s) and Readings**

- Schwartz's Principles of Surgery, by F. Brunicaudi, Dana Andersen, Timothy Billiar, and David Dunn.
- Bailey & Love's Short Practice of Surgery 25th Edition by Norman S. Williams, Christopher J.K. Bulstrode and P Ronan O'Connell
- Browse's Introduction to the Symptoms & Signs of Surgical Disease – by Norman L. Browse, John Black, Kevin G. Burnand, and William E. G. Thomas.
- CURRENT Diagnosis and Treatment Surgery, (LANGE CURRENT Series) by Gerard Doherty

### **V. Rotation Outline**

- Please refer to Appendix (A)

### **VI. Teaching Materials Made Available to Students**

- Textbook and references.
- Lecture Notes, from seminars prepared by the consultants and teaching assistants.
- Attending outpatient clinics and learn examination methods after seeing patients, supervised by consultants and residents.

## VII. Educational Facilities

- Classroom with whiteboard.
- College library.
- Internet.

## VIII. Instructional Methods

- **Patient Evaluation and Management:** The students will evaluate patients in the outpatient setting as well as take part in their operations and follow them post-operatively in both the inpatient and outpatient settings.
- **Teaching Sessions:** to cover the most important or common topics and problems in surgery. The student is expected to have read the appropriate background material before the class, as several of the sessions are interactive, problem-solving sessions rather than lectures.
- **Teaching Rounds:** The students will attend Surgical Department Grand Rounds and Morbidity and Mortality Review weekly when available. In these conferences they can obtain up-to-the-minute information and gain insight into the peer review process as well as learn about complications in surgical patients and why they occur.

## IX. Student Rotation Evaluation Methods

Evaluation will be done based on the following:-

- Attendance of clinics and seminars.
- In course evaluation (taking history and picking up signs )
- Preparing seminars, and sharing in discussions.
- Behavior and relation to staff (including nurses and residents)

## X. Major Evaluation Dates

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| Rotation Final Evaluation | End of Rotation (see above)         |
| End of Year Final Exam    | As suggested by University Calendar |

## Appendix (A)

| General surgery |  |   |
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|                 | Topic  | Objectives  |
| 1               | Pre-op evaluation of surgical patients           | <ul style="list-style-type: none"> <li>• Know the aim of pre-op evaluation and it's impaction on results.</li> <li>• Master the art of taking history and physical examination of pre-op patients</li> <li>• List the routine and specific pre-op laboratory investigation</li> </ul>   |
| 2               | Neuroendocrine response to the stress            | <ul style="list-style-type: none"> <li>• Know the physiology of surgical stress</li> <li>• Know the initiating factors of stress</li> <li>• List the hormonal mediators of stress and it's effect on metabolism</li> <li>• Describe the effect of stress on fat, carbohydrate and protein metabolism</li> <li>• Describe the hemostatic changes in response to the stress</li> <li>• Be aware of the clinical and therapeutic relevance of Neuroendocrine response to the stress</li> </ul> |
| 3               | Nutrition  | <ul style="list-style-type: none"> <li>• Review of protein, fat and carbohydrate metabolism.</li> <li>• Nutritional assessment and types of malnutrition.</li> <li>• Know the surgical indications of nutritional administration.</li> <li>• List the indication , contraindications, administration techniques and complications of both enteral and parenteral feeding</li> </ul>   |
| 4               | Surgical site infections and surgical infections | <ul style="list-style-type: none"> <li>• Identify the predisposing factors to SSI</li> <li>• Identify the types of surgical infections</li> <li>• Identify the classes of surgical wounds(clean, clean contaminated, contaminated, dirty)</li> <li>• Know the common microorganisms causing SSI</li> <li>• Describe the principles of prophylactic antibiotic use</li> </ul>  |

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|   |  | <ul style="list-style-type: none"> <li>• Describe the diagnostic features and indicated treatment for common skin infection</li> <li>• Know the measures to decrease the rate of SSI</li> </ul>  |
| 5 | Necrotizing soft tissue infections                       | <ul style="list-style-type: none"> <li>• Identify different forms of necrotizing soft tissue infection (like; necrotizing fasciitis, clostridial gas gangrene, and fournier's gangrene)</li> <li>• Describe the pathophysiology of the infection mentioned above.</li> <li>• Know the microorganism causing these infections</li> <li>• Describe the clinical picture and indicated treatment for each one</li> </ul>  |
| 6 | Prevention of infection in surgical practice             | <ul style="list-style-type: none"> <li>• Understand the principles of infection control and its role in preventing infections</li> <li>• Be aware of methods by which asepsis and antisepsis are achieved and when they are necessary</li> <li>• Know when antibiotic prophylaxis is desirable and when it is not</li> </ul>   |
| 7 | Sepsis and systemic inflammatory response syndrome(SIRS) | <ul style="list-style-type: none"> <li>• To differentiate between the following conditions( bacteremia, sepsis, SIRS, MODS)</li> <li>• Describe pathogenesis of each of the above mentioned conditions</li> <li>• Be aware of the mortality and morbidity of these conditions</li> <li>• Describe the clinical picture of each condition</li> <li>• List the cytokine and non-cytokine mediator of SIRS</li> <li>• Describe general rules for management.</li> </ul> |
| 8 | Circulation dynamics                                     | <ul style="list-style-type: none"> <li>• Review of the cardiovascular system anatomy and physiology</li> <li>• Describe the regulatory mechanisms of blood pressure</li> </ul>   |
| 9 | Fluids and electrolytes                                  | <ul style="list-style-type: none"> <li>• Describe the extracellular, intracellular and intravascular volume in a 70-kg man</li> </ul>  |

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|    |  | <ul style="list-style-type: none"> <li>• List at least four endogenous factors that affect renal control of sodium and water excretion.</li> <li>• Describe the 24-hr sensible and insensible fluid and electrolyte losses in the routine postoperative patient</li> <li>• Identify the signs and symptoms of dehydration</li> <li>• List and describe the objective ways of measuring fluid balance</li> <li>• Know the normal electrolyte values in the normal body secretions</li> <li>• Describe the possible causes(differential diagnosis), appropriate laboratory studies needed, and the treatment of common electrolyte and fluid disorders</li> </ul>  |
| 10 | Bleeding disorders and blood transfusion | <ul style="list-style-type: none"> <li>• Discuss medical history and physical findings that might identify the presence and etiology of a bleeding disorder.</li> <li>• List the minimum preoperative screening tests necessary when the patient is asymptomatic</li> <li>• Name the etiologic factors contributing to bleeding disorders</li> <li>• Name the common surgical conditions leading to disseminated intravascular coagulation (DIC).</li> <li>• Outline the importance of major and minor blood groups</li> <li>• Describe how to obtain and store blood</li> <li>• List the indications for blood transfusion in surgical practice</li> <li>• Recognize hazards of blood transfusion and how to avoid those (Infections, reactions).</li> <li>• Identify the different components of blood and how to order each of them.</li> </ul> |
| 11 | Shock                                    | <ul style="list-style-type: none"> <li>• Define shock.</li> <li>• List four categories of shock (hypovolemic, cardiogenic, septic, and neurogenic).</li> <li>• List at least three causes for each type of shock</li> <li>• Contrast the effects of each category of shock on heart, kidney and brain.</li> <li>• Recognize the hemodynamic features, diagnostic tests, and physical findings that differentiate each type of shock.</li> </ul>  |

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|    |  | <ul style="list-style-type: none"> <li>• Name and briefly describe the monitoring techniques that help in diagnosis and management of shock.</li> <li>• Outline the general principles of fluid, pharmacologic, and surgical intervention for each category of shock.</li> </ul>  |
| 12 | Stomas   | <ul style="list-style-type: none"> <li>• Define the stomas</li> <li>• List different types of stomas</li> <li>• Master the physical examination of stomas</li> <li>• Describe the permanent and temporary indication of stomas</li> <li>• Know the early and late complications of stomas</li> </ul>  |
| 13 | Tubes and drains   | <ul style="list-style-type: none"> <li>• Know the types of tubes and drains used in clinical practice</li> <li>• Describe the nasogastric tubes( indication, contraindications and technique of insertion and removal)</li> <li>• Describe the T- tubes( indication, contraindications, complications and technique of insertion and removal)</li> <li>• Describe the foley's ( indication, contraindications, complications and technique of insertion and removal)</li> <li>• Describe chest tubes: <ul style="list-style-type: none"> <li>• Types</li> <li>• Absolute and relative indications</li> <li>• Procedure of insertion and removal</li> <li>• Acute and late complication</li> </ul> </li> </ul> |
| 14 | Multiple injuries: first aid and triage.<br>Management of specific traumas | <ul style="list-style-type: none"> <li>• Describe the conditions, signs, and symptoms commonly associated with upper airway obstruction.</li> <li>• Describe the risks associated with the management of an airway in the traumatized patient.</li> <li>• Outline the options available and the sequence of steps required to control an airway in the traumatized patient, including protection of the cervical spine.</li> <li>• List the identifying characteristics of patients</li> </ul>  |

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|  |  | <p>who are likely to have upper airway obstruction.</p> <ul style="list-style-type: none"><li>• Define shock, including the pathophysiology.</li><li>• List four types of shock and outline the management of a patient in hemorrhagic shock.</li><li>• List the indications and contraindications for use of a pneumatic antishock garment in patients with hemorrhagic shock.</li><li>• List six thoracic injuries that are immediately life threatening and should be identified in the primary survey and six that potentially life threatening and should be identified in the secondary survey. Outline a treatment plan for each injury.</li><li>• List the indications for chest tube insertion, pericardiocentesis, and needle thoracentesis. Outline the technique for each.</li><li>• List three common thoracic injuries that, although not life threatening, need skilled care.</li><li>• Define the limits of the abdominal cavity,</li><li>• Demonstrate the abdominal examination for trauma and outline the tests that are of use in abdominal trauma.</li><li>• Differentiate between blunt and penetrating trauma.</li><li>• List the indications, contraindications, and limitations of peritoneal lavage</li><li>• Describe a positive peritoneal lavage.</li><li>• Outline the pathophysiologic events leading to decreased levels of consciousness, including the unique anatomic and physiologic features of head and spinal injuries.</li><li>• List the three functions assessed by the Glasgow Coma Scale and outline the point scale.</li><li>• Outline the initial management of the unconscious patient and the patient with suspected spinal cord injury.</li><li>• List the test results and assessment results that should be passed to neurologic consultants.</li><li>• Outline the differences between non-life-threatening and life threatening extremity injuries and the management of each.</li><li>• Describe a thorough examination of the extremities in a traumatized patient</li></ul> |
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| 15                            | Hernias                         | <ul style="list-style-type: none"> <li>• Define "hernia" and differentiate direct inguinal hernia, indirect inguinal hernia, femoral hernia, lumbar hernia, obturator hernia, incisional hernia, and spigelian hernia.</li> <li>• Describe the anatomy of the inguinal region including the layers within the spermatic cord.</li> <li>• Identify and state the incidence, identification of, operative risks and complications of abdominal wall hernias, to include femoral, inguinal, and ventral hernias.</li> <li>• Outline the fundamentals of surgical repair of various groin, umbilical, and ventral hernias.</li> </ul> |
| <b>Cardiovascular surgery</b> |                                 |   |
| 1                             | The Mediastinum                 | <ul style="list-style-type: none"> <li>• Revision of the chest anatomy and the anatomical relations for its organs</li> <li>• Define the mediastinum compartments and the components for each one</li> <li>• Define the common mediastinal masses, their signs and symptoms according to site, their differential diagnosis, the plan of diagnosis, the initial steps of treatments, and the benefits of surgical interventions</li> </ul>  |
| 2                             | Abnormalities of the chest wall | <ul style="list-style-type: none"> <li>• Describe the chest wall skeletal anomalies: kyphoscoliosis, supernumerary ribs, sternal clefts, pectus excavatum, pectus carinatum</li> <li>• Pathogenesis of chest wall anomalies and their development throughout life</li> <li>• Signs and symptoms of each chest wall anomaly</li> <li>• Initial investigations and the diagnosis of each chest wall anomaly.</li> <li>• lines of treatments and the surgical intervention and its indications</li> </ul>  |
| 3                             | Emphysema and lung abscesses    | <ul style="list-style-type: none"> <li>• Define the emphysema and lung abscesses, their classifications, sites and stages, their surgical and medical causes, the causative microorganism, their clinical presentation, their diagnosis, the abnormalities in physical</li> </ul>   |

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|   |                           | <p>examination, and the major lines of treatments- the role of antibiotics, chest tube, and thoracotomy.</p> <ul style="list-style-type: none"> <li>• Differential diagnosis of a cavity lung lesion, its management and surgical indications</li> </ul>  |
| 4 | Acute respiratory failure | <ul style="list-style-type: none"> <li>• Review of respiratory system anatomy and physiology</li> <li>• Definition of acute respiratory failure</li> <li>• Classification of acute respiratory failure</li> <li>• Diagnosis – physical examination ,laboratory, investigations</li> <li>• Treatments of the different types of respiratory failure</li> <li>• ARDS (acute respiratory distress syndrome)</li> </ul>   |
| 5 | Lung cancer               | <ul style="list-style-type: none"> <li>• Overview of lung cancer, incidence, and how it costs and affects the society</li> <li>• Lung cancer types</li> <li>• Risk factors and the role of smoking</li> <li>• Symptoms and signs of lung cancer</li> <li>• Diagnosis-physical examination and investigations-</li> <li>• Staging and its role</li> <li>• Treatment depending on type and stage</li> </ul>   |
| 6 | Chest trauma              | <ul style="list-style-type: none"> <li>• Incidence of chest trauma</li> <li>• Review of thoracic cavity contents</li> <li>• Mechanism of injury</li> <li>• Structures to be injured by different mechanisms</li> <li>• Signs of chest trauma and the physical examination findings</li> <li>• Acute and chronic complications of chest trauma- pneumothorax, its types, and treatments, hemothorax</li> <li>• Guide lines of initial treatment and surgical intervention</li> </ul> |
| 7 | Congenital heart diseases | <ul style="list-style-type: none"> <li>• Review of cardiac embryology and anatomy</li> <li>• Review of perinatal and postnatal circulation</li> <li>• Define the pathogenesis and pathophysiology of</li> </ul>   |

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|    |                               | <p>congenital heart diseases</p> <ul style="list-style-type: none"> <li>• Identify the common congenital heart diseases and their types- ASD,VSD,</li> <li>• Identify the clinical presentation of each one and its relation to the patient age</li> <li>• The diagnosis depending on the physical examination findings an investigations</li> <li>• Lines of treatment and surgical intervention</li> </ul>   |
| 8  | Ischemic heart diseases(IHD)  | <ul style="list-style-type: none"> <li>• Define the ischemic heart diseases</li> <li>• Identify the pathogenesis and the risk factors for ischemic heart diseases</li> <li>• The surgical point of view and surgical indications</li> <li>• Identify the CABG – coronary artery bypass graft- and the types of conduits</li> <li>• Surgical complications after CABG, mortality, and the expected outcomes</li> </ul>  |
| 9  | Surgical pericardial diseases | <ul style="list-style-type: none"> <li>• Review of pericardial anatomy and heart physiology</li> <li>• Identify the acute pericarditis, definition, prevalence, symptoms, physical examination, diagnosis and treatment</li> <li>• Identify the pericardial effusion, definition, etiology, symptoms, physical examination, diagnosis and treatment</li> <li>• Identify the cardiac tamponade, definition, etiology, symptoms, physical examination, diagnosis and treatment</li> <li>• Identify the constrictive pericarditis, definition, etiology, symptoms, physical examination, diagnosis and treatment</li> <li>• Identify the indications , contraindications of pericardiocentesis and how to perform it</li> </ul> |
| 10 | Valvular heart diseases (VHD) | <ul style="list-style-type: none"> <li>• Review of heart anatomy and physiology</li> <li>• Identify the VHD – aortic stenosis, aortic regurgitation, mitral stenosis and mitral regurgitation- pathophysiology, sings, symptoms, diagnosis, investigations and indications for surgical intervention</li> </ul>  |

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|    |  | <ul style="list-style-type: none"> <li>• Identify the advantages and disadvantages for different valve replacement conduits – bioprosthetic valves, mechanical valves and animal tissue valves</li> <li>• Identify the percutaneous balloon valvuloplasty and its indications</li> </ul>  |
| 11 | Physical examination of peripheral vascular diseases | <ul style="list-style-type: none"> <li>• Demonstration of physical examination</li> <li>• Review the pulses and their grading system</li> <li>• Review of some specific examinations – Allen test and Beurger test</li> </ul>   |
| 12 | Acute arterial occlusion                             | <ul style="list-style-type: none"> <li>• Identify the causes of acute limb ischemia</li> <li>• Identify the pathophysiology, clinical manifestations, differential diagnosis, diagnosis and treatment of acute limb ischemia</li> <li>• Identify the etiology of arterial embolism, its risk factors, and evaluation</li> <li>• Rutherford classification for limb ischemia</li> <li>• Guide lines of treatments</li> </ul>   |
| 13 | Chronic occlusive arterial diseases                  | <ul style="list-style-type: none"> <li>• Identify the difference in history and physical examination between acute and chronic occlusive arterial diseases</li> <li>• Recognize the risk factors for chronic occlusive arterial diseases and prevention tools</li> <li>• Surgical indications for treatment and intervention</li> </ul>   |
| 14 | Aortic diseases                                      | <ul style="list-style-type: none"> <li>• Aortic dissection-definition, risk factors, clinical presentation, diagnosis, and treatment-</li> <li>• Thoracic aortic aneurysms- definition, risk factors, clinical presentation, diagnosis, and treatment-</li> <li>• Abdominal aortic aneurysms- definition, risk factors, clinical presentation, diagnosis, and treatment.</li> <li>• Aorto-iliac occlusion - definition, risk factors, clinical presentation, diagnosis, and treatment.</li> </ul> |
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| 15 | Peripheral vascular injury                  | <ul style="list-style-type: none"> <li>• Review of peripheral vascular anatomy and physiology</li> <li>• Identify the common sites of vascular injury</li> <li>• Identify the etiology, frequency and mortality for each injury</li> <li>• Clinical presentation</li> <li>• Complications and initial lines of treatment</li> </ul>   |
| 16 | Gangrene and amputation                     | <ul style="list-style-type: none"> <li>• Define gangrene</li> <li>• Types of gangrene</li> <li>• Identify the causes of different types of gangrene</li> <li>• Treatment of different types of gangrene</li> <li>• Identify types of amputations and their levels for upper and lower limbs</li> </ul>  |
| 17 | Superficial and deep vein systems disorders | <ul style="list-style-type: none"> <li>• Review for the anatomy and physiology of venous return of lower limbs</li> <li>• Define the varicose veins, their classifications, pathophysiology, history, risk factors, clinical presentation, diagnosis, and treatment</li> <li>• Define superficial thrombophlebitis, causes, and treatment</li> <li>• Define the DVT- deep vein thrombosis -,its sites, history, pathophysiology, risk factors, complications, clinical presentation, diagnosis, and treatment</li> <li>• Define CVI- chronic venous insufficiency- , its causes, pathophysiology ,its symptoms and signs, diagnosis, and treatment</li> </ul> |
| 18 | Lymphedema                                  | <ul style="list-style-type: none"> <li>• Identify lymphedema, its symptoms, the differential diagnosis, how to diagnose it, its classes</li> <li>• Causes of primary and secondary lymphedema</li> <li>• Identify the complications for lymphedema</li> <li>• How to treat the deferent classes</li> </ul>  |

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| 19                       | Chest tube                | <ul style="list-style-type: none"> <li>• Identify the types of chest tube</li> <li>• The mechanism of action for each type</li> <li>• Sites of insertion and how</li> <li>• Absolute and relative indications and contraindications</li> <li>• Complications –acute and late ones-</li> <li>• How to perform bedside examinations for chest tube malfunction</li> </ul> |
| <b>Pediatric surgery</b> |                           |   |
| 1                        | Intestinal obstruction I  | <ul style="list-style-type: none"> <li>• Review of GI system anatomy and physiology</li> <li>• Identify intestinal obstruction</li> <li>• Pathophysiology of intestinal obstruction</li> <li>• Types of intestinal obstruction</li> </ul>   |
| 2                        | Intestinal obstruction II | <ul style="list-style-type: none"> <li>• Manifestations and clinical presentation of intestinal obstruction</li> <li>• Associated anomalies and syndromes</li> <li>• Diagnosis of intestinal obstruction and investigations</li> <li>• Guide lines of treatment and acute care</li> </ul>   |
| 3                        | Intussusception           | <ul style="list-style-type: none"> <li>• Definition and epidemiology of intussusception</li> <li>• Pathogenesis of Intussusception</li> <li>• Clinical presentation of intussusception.</li> <li>• Etiology (idiopathic or due to underlying causes)</li> <li>• Differential diagnosis and how it diagnose Intussusception</li> </ul>                                   |

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|   |                                | <ul style="list-style-type: none"> <li>• Investigations and management of intussusception</li> </ul>   |
| 4 | Meconium Ileus and malrotation | <ul style="list-style-type: none"> <li>• Review of GI system embryology and its anatomical relations</li> <li>• Identify meconium ileus, its pathogenesis, clinical presentation, patient history, complications, guide lines of management, surgical indications for intervention</li> <li>• Identify meconium plug syndrome, its clinical presentation, and management</li> <li>• Identify malrotation , its pathogenesis, clinical presentation, patient history, complications, guide lines of management, surgical indications for intervention</li> <li>• Identify ladd's procedure</li> </ul> |
| 5 | Hirschsprung's disease         | <ul style="list-style-type: none"> <li>• Definition and epidemiology</li> <li>• Pathogenesis and the etiology for between Hirschsprung's disease</li> <li>• Clinical presentation and patient history</li> <li>• Differentiation between Hirschsprung's disease and habitual constipation.</li> <li>• Investigation and how to diagnose Hirschsprung's disease</li> <li>• Surgical treatment and its indications</li> </ul>  |
| 6 | Pyloric stenosis               | <ul style="list-style-type: none"> <li>• Epidemiology of pyloric stenosis</li> <li>• Pathophysiology of pyloric stenosis</li> </ul>  |

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|   |                                | <ul style="list-style-type: none"> <li>• Identify paradoxical acidurea</li> <li>• Clinical presentation of pyloric stenosis</li> <li>• Investigation and surgical management of pyloric stenosis.</li> </ul>   |
| 7 | Pediatric hydronephrosis       | <ul style="list-style-type: none"> <li>• Review of urogenital anatomy and physiology</li> <li>• Identify hydronephrosis, its incidence and etiology</li> <li>• The differential diagnosis, how to diagnose the cause, investigations</li> <li>• Acute and chronic complication</li> <li>• Guide lines treatment</li> </ul>   |
| 8 | Pediatric urological anomalies | <ul style="list-style-type: none"> <li>• Identify Pelvi-ureteric junction (PUJ)obstruction -, its incidence, etiology, the diagnosis, complications and treatment</li> <li>• Identify vesicoureteral reflux (VUR), its definition, the pathophysiology, its frequency, clinical presentation, history and physical signs, predisposing factors, investigations, imaging studies, the diagnosis, the international classification system, guide lines of treatment and surgical indications for intervention</li> </ul> |
| 9 | Abdominal wall defects         | <ul style="list-style-type: none"> <li>• Review of abdominal wall anatomy and layers</li> <li>• Omphalocele, its definition, epidemiology, pathogenesis, types and their sites, lines of treatment ,surgical indications for intervention, and complications after surgery</li> <li>• Gastroschisis, its definition, epidemiology, pathogenesis, sites, lines of treatment ,surgical</li> </ul>  |

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|    |                               | <p>indications for intervention, and complications after surgery</p> <ul style="list-style-type: none"> <li>• How to differentiate between omphalocele and gastroschisis</li> </ul>   |
| 10 | Pediatric umbilical disorders | <ul style="list-style-type: none"> <li>• Review for the anatomy and embryology for umbilical cord</li> <li>• Identify for the types of umbilical disorders (congenital and acquired).</li> <li>• Identify umbilical masses</li> <li>• Identify umbilical hernia</li> <li>• Identify supraumbilical hernia</li> <li>• Identify urachus</li> <li>• Identify omphalitis</li> <li>• Identify vitello intestinal duct</li> </ul> |
| 11 | Circumcision                  | <ul style="list-style-type: none"> <li>• Definitions of phimosis, paraphimosis, balanitis, posthitis and meatitis</li> <li>• Benefits of circumcision</li> <li>• Indications and contraindications of circumcision</li> <li>• Complications of circumcision</li> <li>• Surgical techniques of circumcision</li> </ul>   |
| 12 | Hypospadias and epispadias    | <ul style="list-style-type: none"> <li>• Review for the anatomy and embryology of the penis</li> <li>• Definition of hypospadias</li> </ul>   |

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|    |   | <ul style="list-style-type: none"> <li>• Classifications of hypospadias</li> <li>• Anomalies associated with hypospadias</li> <li>• Surgical indications for intervention</li> <li>• Complications of surgery</li> <li>• Identify epispadias and its associated anomalies</li> </ul>  |
| 13 | Inguinoscrotal disorders in children        | <ul style="list-style-type: none"> <li>• Review for the embryology of the inguinal canal.</li> <li>• Identify hydrocele and its presentation and management</li> <li>• Identify the risk factor for inguinal hernia.</li> <li>• Presentation of inguinal hernia</li> <li>• Complications of inguinal hernia</li> <li>• Surgical management and its indications of inguinal hernia</li> <li>• Differentiation between retractile testicles, ectopic testicles and undescended testicles, their complications, and the surgical management and its indications</li> </ul> |
| 14 | Gastro esophageal reflux in children (GERD) | <ul style="list-style-type: none"> <li>• Definition of GERD</li> <li>• Classification (functional and pathological)</li> <li>• Pathogenesis of GERD</li> <li>• Predisposing illnesses and risk factors of GERD</li> <li>• Clinical presentation and patient history</li> <li>• Diagnosis and investigations</li> <li>• Guide lines of management and indications for surgical intervention</li> </ul>   |

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| 15 | Imperforated anus       | <ul style="list-style-type: none"> <li>• Review for the embryology of the anus and perianal area</li> <li>• Identify imperforated anus, its pathogenesis, and incidence</li> <li>• Recognize the classification of imperforate anus- low or high-.</li> <li>• Identify the associated anomalies and syndromes</li> <li>• Diagnosis and investigations</li> <li>• Acute management and surgical intervention for imperforate anus.</li> <li>• Results of surgery and prognosis</li> </ul>   |
| 16 | GI bleeding in children | <ul style="list-style-type: none"> <li>• Identify the c causes for upper GI bleeding according to age – neonates, infants, preschool, and school age-</li> <li>• Identify the c causes for lower GI bleeding according to age – neonates, infants, preschool, and school age-</li> <li>• Clinical presentations and patient history for upper and lower GI bleeding</li> <li>• Diagnosis and investigations for upper and lower GI bleedings</li> <li>• Identify Meckels diverticulum, its pathogenesis, incidence, presentation, differential diagnosis, how to diagnose, and indications for surgical intervention</li> <li>• Identify rectal prolapse, pathogenesis, incidence, presentation, differential diagnosis, how to diagnose, and indications for surgical intervention</li> </ul> |

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|    |                                    | <ul style="list-style-type: none"> <li>• Identify necrotizing enterocolitis , pathogenesis, incidence, presentation, differential diagnosis, how to diagnose, and surgical treatment</li> <li>• Acute management and indications for surgical intervention in massive GI bleedings</li> </ul>   |
| 17 | Obstructive jaundice               | <ul style="list-style-type: none"> <li>• Review for liver and biliary anatomy</li> <li>• Identify biliary atresia, its incidence and etiology</li> <li>• Classification of biliary atresia</li> <li>• Clinical presentation and patient history of biliary atresia</li> <li>• Diagnosis and investigations</li> <li>• Surgical management of biliary atresia and recognize Kasai procedure</li> <li>• Identify acalculus cholecystitis , its pathophysiology, etiology, clinical presentation, and lines of treatment</li> <li>• Identify acute calculus cholecystitis , its pathophysiology, etiology, clinical presentation, and lines of treatment</li> <li>• Identify choledochal cysts , its pathophysiology, etiology, clinical presentation, classification, and surgical treatment for each type</li> </ul> |
| 18 | Pediatric nutritional requirements | <ul style="list-style-type: none"> <li>• Pediatric water requirement</li> <li>• Pediatric calorie requirement</li> <li>• Pediatric vitamins and minerals requirement</li> <li>• Total parenteral nutrition (indications, composition and complications).</li> </ul>   |

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| 19 | Pediatric trauma                       | <ul style="list-style-type: none"> <li>• Epidemiology and incidence</li> <li>• Differences from adults –how does trauma affect children in different way from adults</li> <li>• Pediatric trauma score</li> <li>• Acute management and fluid for resuscitation.</li> <li>• Organ system response to blood loss.</li> <li>• Indications for exploratory laparotomy</li> <li>• Death due to trauma</li> <li>• Identify child abuse and its signs and how to differentiate it from trauma</li> </ul>  |
| 20 | Foreign body swallowing and aspiration | <ul style="list-style-type: none"> <li>• Age incidence of aspiration and swallowing</li> <li>• Types of foreign bodies (organic and non organic)</li> <li>• Symptoms of aspiration, -identify penetration syndrome</li> <li>• Symptoms swallowing according to site-</li> <li>• X-ray findings</li> <li>• How to follow up the patient and to measure the object progress</li> <li>• Complications for aspiration and swallowing</li> <li>• Management according to site and object type – sharp or blunt-</li> <li>• How to deal with batteries swallowing</li> </ul> |
| 21 | Neck swellings                         | <ul style="list-style-type: none"> <li>• Review of neck anatomy and embryology</li> <li>• Differential diagnosis of neck swellings</li> </ul>  |

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|    |  | <ul style="list-style-type: none"> <li>• Cervical lymphadenopathy (Causes, epidemiology and treatment)</li> <li>• Congenital torticollis (Definition, causes, associated anomalies and management)</li> <li>• Thyroglossal duct cyst (Epidemiology, presentation, etiology, diagnosis and management)</li> <li>• Branchial cleft fistulas (Types, presentation and management)</li> <li>• Cystic hygroma (Definition, presentation, diagnosis and management)</li> </ul>  |
| 22 | Congenital diaphragmatic hernia                      | <ul style="list-style-type: none"> <li>• Review for the anatomy and the embryology of the diaphragm</li> <li>• Identify the Types of CDH-Bachdelek, Morgangi and hiatus</li> <li>• Incidence and pathogenesis of CDHs</li> <li>• Prenatal considered factors and risk factors</li> <li>• Clinical presentation for each type</li> <li>• Prenatal and postnatal diagnosis</li> <li>• Complications for each type- recognize pulmonary hypoplasia</li> <li>• Acute management and surgical indications for intervention</li> <li>• Prognosis</li> </ul> |
| 23 | Esophageal atresia and trachoesopgigeal fistula(TEF) | <ul style="list-style-type: none"> <li>• Review for the anatomy and embryogenesis for lungs and esophagus</li> <li>• Identify TEF</li> </ul>  |

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|                         |              | <ul style="list-style-type: none"> <li>• Recognize the classification of TEF and its types</li> <li>• Identify TEF clinical presentation</li> <li>• Recognize the differential diagnosis, and how to do your diagnosis</li> <li>• Identify the associated anomalies</li> <li>• Acute management and surgical treatment</li> <li>• Prognosis for each type</li> </ul>   |
| 24                      | Solid tumors | <ul style="list-style-type: none"> <li>• Frequency of malignant diseases in childhood.</li> <li>• Wilms tumor (incidence, types, associated anomalies, staging, clinical presentation, prognosis, and treatment.)</li> <li>• Recognize Wilms syndromes- Drashm WAGR, Bechwith wiedmann and Klippel Trnaunnay</li> <li>• Neuroblastoma (incidence, types, associated anomalies, clinical presentation, prognosis and treatment.)</li> </ul> |
| <b>Oncology surgery</b> |              |  |
| 1                       | Neoplasm     | <ul style="list-style-type: none"> <li>• Definition of neoplasm</li> <li>• Review of cell cycle</li> <li>• Terminology: hyperplasia, hypertrophy, metaplasia, dysplasia and cancer in situ</li> <li>• Statistics of different types of neoplasms</li> <li>• Spectra of neoplasm</li> </ul>   |
| 2                       | Cancer       | <ul style="list-style-type: none"> <li>• Definition of cancer</li> <li>• The pathophysiology of carcinogenesis and tumor biology</li> <li>• Common DNA mutations noticed in the common type of cancers</li> <li>• Risk factors for cancers and carcinogenic factors</li> <li>• Prevention and screening of cancers in general</li> </ul>   |

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| 3 | Staging of cancer             | <ul style="list-style-type: none"> <li>• Identify the clinical and pathological staging</li> <li>• TNM classification</li> <li>• Investigations used in staging</li> </ul>   |
| 4 | Radiotherapy                  | <ul style="list-style-type: none"> <li>• Its role in cancer treatment</li> <li>• Types of radiotherapy</li> <li>• Mechanism of action</li> <li>• Techniques used</li> <li>• Doses fractionation</li> <li>• The effect on normal tissue</li> <li>• Indications and contraindications for radiotherapy in the common types of cancers</li> <li>• Complications and its harm effects</li> </ul> |
| 5 | Chemotherapy                  | <ul style="list-style-type: none"> <li>• Its role in cancer treatment,</li> <li>• Classifications of chemotherapeutic agents</li> <li>• Response of tumors to chemotherapy,</li> <li>• Its effect on normal tissue</li> <li>• sides effects and its harm effect</li> <li>• Indications and contraindications</li> </ul>  |
| 6 | Surgical oncology             | <ul style="list-style-type: none"> <li>• Different types of biopsies-FNA, true cut biopsy, incisional biopsy, excisional biopsy-</li> <li>• Surgery for prevention of cancer</li> <li>• Surgery for cancer cure</li> <li>• Surgery for metastatic diseases</li> <li>• Surgery for oncologic emergencies</li> <li>• Surgery for palliation cases</li> </ul>                                   |
| 7 | Induration to breast diseases | <ul style="list-style-type: none"> <li>• Review of, breast anatomy, blood supply, lymphatic drainage, histology and physiology</li> <li>• Physical examination for the breast</li> <li>• Identify malignant and benign breast diseases</li> </ul>  |
| 8 | Benign breast diseases        | <ul style="list-style-type: none"> <li>• FBC- fibrocystic breast change-</li> <li>• Breast cysts</li> <li>• Fibroadenoma</li> <li>• Mastalgia</li> </ul>   |

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|                        |                                     | <ul style="list-style-type: none"> <li>• Nipple discharge</li> <li>• Breast infections</li> </ul>   |
| 9                      | Breast cancer(1)                    | <ul style="list-style-type: none"> <li>• Epidemiology of breast cancer</li> <li>• Patient history, signs and symptoms, and clinical presentation,</li> <li>• Risk factors and the inheritance of breast cancer</li> <li>• The diagnosis of breast cancer</li> </ul>   |
| 10                     | Breast cancer(2)                    | <ul style="list-style-type: none"> <li>• Identify the noninvasive types of breast cancer-ductal carcinoma in situ(DCIS) and lobular carcinoma in situ(LCIS)-</li> <li>• Identify the invasive types of breast cancer-infiltrating ductal carcinoma, infiltrating lobular carcinoma, medullary carcinoma, mucinous carcinoma and tubular carcinoma</li> <li>• Grading and staging of breast cancer</li> <li>• Guide lines of management</li> <li>• life expectance and prognosis of different types</li> </ul> |
| 11                     | Soft Tissue Sarcomas                | <ul style="list-style-type: none"> <li>• Epidemiology of Soft Tissue Sarcomas, and distribution on anatomical basis</li> <li>• Major types.</li> <li>• Common principles regarding the management</li> <li>• Overall prognosis</li> </ul>   |
| <b>Plastic surgery</b> |                                     |   |
| 1                      | Basic principles in Plastic surgery | <ul style="list-style-type: none"> <li>• Types of skin grafts</li> <li>• Types of skin flaps</li> <li>• Tissue expansion techniques, indications and contraindications.</li> </ul>  |
| 2                      | Wound healing and its disorders     | <ul style="list-style-type: none"> <li>• Define a wound and describe the sequence and approximate time frame of the phases of wound healing.</li> <li>• Describe the essential elements and significance of granulation tissue.</li> <li>• Describe the three types of wound healing and the elements of each.</li> <li>• Describe the phases of wound healing distinct to</li> </ul>   |

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|   |                             | <p>each type of wound.</p> <ul style="list-style-type: none"> <li>• Describe clinical factors that decrease collagen synthesis and retard wound healing..</li> <li>• Discuss the functions of a dressing.</li> <li>• Define a clean a contaminated and an infected wound and describe the management of each</li> </ul>   |
| 3 | Hand injuries and infection | <ul style="list-style-type: none"> <li>• Surgical anatomy of the hand</li> <li>• Type of injuries</li> <li>• Clinical review of hand injuries</li> <li>• Nerve's evaluation of affected nerve</li> <li>• Modality of surgical treatment</li> </ul>  |
| 4 | Burns and skin coverage     | <ul style="list-style-type: none"> <li>• Obtain relevant history for burns (flame, scold, closed space, exposure time, possible associated injuries)</li> <li>• Describe burn depth and size in a patient with a major burn</li> <li>• Determine percentage and degree of burns</li> <li>• List the indications for admission</li> <li>• Discuss pain management.</li> <li>• Outline fluid replacement.</li> <li>• Discuss wound management (open, closed, principles of antiseptic solutions).</li> <li>• Know the value of skin grafting</li> </ul> |
| 5 | Cleft lip and palate        | <ul style="list-style-type: none"> <li>• Embryology of the lips and palate</li> <li>• Identify presentation and diagnostic methods</li> <li>• Preoperative care</li> <li>• Outline principles of management</li> </ul>  |
| 6 | Skin tumors                 | <ul style="list-style-type: none"> <li>• Anatomy of the skin</li> <li>• Type of tumors</li> <li>• Predispose factors</li> <li>• Prophylactic measurement from skin tumors</li> <li>• Clinical presentation</li> <li>• Investigation</li> <li>• Treatment</li> </ul>   |
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| 7  | Frost bite         | <ul style="list-style-type: none"> <li>• Risk factors</li> <li>• Classification of frostbite</li> <li>• Treatment of frostbite</li> </ul>                      |
| 8  | Vascular anomalies | <ul style="list-style-type: none"> <li>• Definition of vascular anomalies</li> <li>• Classification</li> <li>• Complications</li> <li>• Management</li> </ul>  |
| 9  | Pressure sores     | <ul style="list-style-type: none"> <li>• Classification</li> <li>• Etiology</li> <li>• Prevention</li> <li>• Treatment</li> </ul>                              |
| 10 | Skin tumors        | <ul style="list-style-type: none"> <li>• Classification</li> <li>• Signs and symptoms</li> <li>• Causes</li> <li>• Prevention</li> <li>• Management</li> </ul> |

**Gastrointestinal surgery**

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| 1 | Embryology of the GI tract | <ul style="list-style-type: none"> <li>• Embryological divisions of GI system.</li> <li>• Origin of congenital GI anomalies.</li> <li>• Development of Esophagus.</li> <li>• Esophageal Atresia with Tracheoesophageal (TE) Fistula.</li> <li>• Development of the Duodenum &amp; Duodenal Atresia.</li> <li>• Development of the Pancreas.</li> <li>• Gut Rotation &amp; Anomalies Associated with Malrotation.</li> <li>• Meckel's (Ileal) Diverticulum.</li> </ul> |
| 2 | Abdominal wall anatomy     | <ul style="list-style-type: none"> <li>• Antero-lateral abdominal wall (layers, muscles, nerves &amp; blood vessels )</li> <li>• Posterior abdominal wall (layers, muscles, nerves &amp; blood vessels )</li> <li>• Applied anatomy (abdominal regions &amp; sites of abdominal hernia orifices)</li> <li>• Types of abdominal incisions</li> </ul>   |

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| 3 | Penetrating abdominal injuries | <ul style="list-style-type: none"> <li>• Review of abdominal wall layers.</li> <li>• Review of first aid and triage principles.</li> <li>• Describe the conditions, signs, and symptoms commonly associated with abdominal injuries.</li> <li>• Define the limits of the abdominal cavity, demonstrate the abdominal examination for trauma and outline the tests that are of use in abdominal trauma.</li> <li>• Differentiate between blunt and penetrating trauma.</li> <li>• List the indications, contraindications, and limitations of peritoneal lavage.</li> <li>• Describe a positive peritoneal lavage.</li> </ul> <p>Management of penetrating abdominal trauma.</p> |
| 4 | Acute abdomen                  | <ul style="list-style-type: none"> <li>• Definition of acute abdomen</li> <li>• The differentiate between acute abdomen and surgical abdomen</li> <li>• Anatomy of peritoneum</li> <li>• The difference between visceral and parietal pain.</li> <li>• Differential Diagnosis.</li> <li>• History &amp; physical examination of patients with acute abdomen.</li> <li>• Labs &amp; diagnostic studies.</li> </ul>   |
| 5 | Vermiform appendix             | <ul style="list-style-type: none"> <li>• List the signs and symptoms of acute appendicitis</li> <li>• Formulate a differential diagnosis.</li> <li>• Outline a diagnostic work up in patients with suspected acute appendicitis.</li> <li>• List common complications of a ruptured appendix.</li> <li>• Describe the incidence and management of appendiceal carcinoid.</li> </ul>   |
| 6 | Organ transplantation          | <ul style="list-style-type: none"> <li>• History of organ transplantation.</li> <li>• definition of auto-, iso-,allo-,xeno- graft</li> <li>• Knowing the concept of rejection.</li> <li>• Pathophysiology&amp; classification of graft rejection.</li> </ul>  |

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|    |  | <ul style="list-style-type: none"> <li>• Management of graft rejection.</li> </ul>  |
| 7  | Splenectomy                            | <ul style="list-style-type: none"> <li>• Review of spleen anatomy &amp; physiology.</li> <li>• Indication of splenectomy.</li> <li>• Splenectomy in bone marrow disorders.</li> <li>• Complications.</li> <li>• Overwhelming infections after splenectomy.</li> <li>• Spleen trauma.</li> </ul>   |
| 8  | Swallowing and dysphagia               | <ul style="list-style-type: none"> <li>• Physiology of swallowing</li> <li>• Pathophysiology of dysphagia</li> <li>• Etiology of dysphagia</li> <li>• Taking history from patients with dysphagia.</li> <li>• Understanding the diagnostic studies used in patients with dysphagia</li> <li>• Management of common causes of dysphagia</li> </ul>   |
| 9  | Gastroesophageal reflux disease (GERD) | <ul style="list-style-type: none"> <li>• Physiology of LES</li> <li>• Definition &amp; Epidemiology</li> <li>• Pathophysiology of GERD</li> <li>• Knowing the classical presentation of GERD</li> <li>• Diagnoses &amp; Evaluation</li> <li>• Grading of GERD</li> <li>• Complications of GERD</li> <li>• Medical management of GERD</li> <li>• Surgical management and its indication</li> </ul> |
| 10 | Benign tumors of esophagus             | <ul style="list-style-type: none"> <li>• Types of benign lesions &amp; epidemiology.</li> <li>• Clinical presentation of each lesion.</li> <li>• Diagnostic studies.</li> <li>• Management approach.</li> </ul>   |
| 11 | Malignant tumors of esophagus          | <ul style="list-style-type: none"> <li>• Epidemiology of esophageal carcinoma.</li> <li>• Risk factor for cancer.</li> <li>• knowing the histological classification of esophageal cancer</li> <li>• How to suspect esophageal cancer in patient with dysphagia</li> <li>• Investigation and staging of esophageal cancer</li> <li>• Basic management of esophageal cancer</li> </ul>             |

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| 12 | Gastric secretory function & Peptic ulcer disease (PUD) | <ul style="list-style-type: none"> <li>• Anatomy of the stomach &amp; nerve supply.</li> <li>• Physiology of gastric function.</li> <li>• Knowing phases of acid production.</li> <li>• Definition of PUD &amp; epidemiology.</li> <li>• Pathophysiology of PUD &amp; risk factors.</li> <li>• Classical presentation.</li> <li>• Diagnoses &amp; evaluation.</li> <li>• Diagnoses of “Helicobacter pylori”.</li> <li>• Complications of PUD.</li> <li>• Basics of medical management of PUD.</li> <li>• Basics of surgical management of PUD.</li> </ul> |
| 13 | Surgical management of obesity                          | <ul style="list-style-type: none"> <li>• Definition and Epidemiology.</li> <li>• How to calculate Body Mass Index (BMI), and classify obesity.</li> <li>• Types of surgery of bariatric surgery (advantages, disadvantages, complications of each type)</li> </ul>  |
| 14 | GI tract lymphoma                                       | <ul style="list-style-type: none"> <li>• Definition of lymphoma &amp; Epidemiology</li> <li>• Distribution of the GI lymphoma along the GI tract.</li> <li>• Knowing the types of lymphoma.</li> <li>• Mucosa associated lymphoid tissue (MALT) &amp; tumors arising from it (risk factors and etiology, pathophysiology, morphology under the microscope &amp; prognosis).</li> <li>• Classical presentation of GI lymphoma.</li> <li>• TNM classification.</li> <li>• Basic surgical management of GI lymphoma.</li> </ul>                              |
| 15 | Gastrointestinal stromal tumors (GIST)                  | <ul style="list-style-type: none"> <li>• Definition of GIST &amp; Epidemiology.</li> <li>• Distribution of the GIST along the GI tract.</li> <li>• Classical presentation</li> <li>• Morphology under the light microscope &amp; immunohistochemistry.</li> <li>• TNM classification.</li> <li>• Diagnosis &amp; Evaluation.</li> <li>• Relation with kit oncogene.</li> </ul>  |

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|    |                            | <ul style="list-style-type: none"> <li>• Basic medical management of GIST</li> <li>• Surgical management of GIST &amp; its indications.</li> <li>• Prognosis.</li> </ul>   |
| 16 | Gastric cancer             | <ul style="list-style-type: none"> <li>• Epidemiology.</li> <li>• Adenocarcinoma &amp; its Risk factors.</li> <li>• Premalignant conditions of the stomach (polyps, atrophic gastritis, gastric remnant cancer &amp; other premalignant states).</li> <li>• Pathology of gastric carcinoma.</li> <li>• Knowing the histological types of gastric cancer.</li> <li>• Clinical manifestations (history &amp; physical examination)</li> <li>• Diagnostic evaluation.</li> <li>• TNM staging of gastric cancer.</li> <li>• Basic management of gastric cancer (gastrectomy, lymphadenectomy, chemotherapy, radiation &amp; endoscopic resection)</li> <li>• Prognosis.</li> </ul> |
| 17 | Intestinal obstruction (1) | <ul style="list-style-type: none"> <li>• Epidemiology of intestinal obstruction.</li> <li>• Pathophysiology (classification according to its anatomic relationship to the intestinal wall, partial vs. complete obstruction, functional vs. mechanical)</li> <li>• Common causes of intestinal obstruction (neoplasms, hernias, crohn's disease intussusception, radiation induced, post-ischemic, foreign body &amp; others) &amp; risk factors.</li> </ul>   |
| 18 | Intestinal obstruction (2) | <ul style="list-style-type: none"> <li>• Clinical manifestations (history &amp; physical examination)</li> <li>• Diagnostic means and how to figure out intestinal obstruction by images.</li> <li>• Treatment approach to patients with intestinal obstruction.</li> <li>• Complications of intestinal obstruction.</li> <li>• Outcomes</li> </ul>  |
|    |                            | <ul style="list-style-type: none"> <li>• Definition of a polyp and pseudopolyp.</li> <li>• Histological classification of GI polyps.</li> </ul>  |

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| 19 | GI polyps            | <ul style="list-style-type: none"> <li>• Risk factor for GI polyp.</li> <li>• Clinical presentation of GI polyps.</li> <li>• Approach to patients with GI Polyps.</li> <li>• Gastric polyps (types &amp; rate of transformation to carcinoma).</li> </ul>  |
| 20 | Colonic polyp        | <ul style="list-style-type: none"> <li>• Histological classification (neoplastic, hamartomatous, inflammatory)</li> <li>• Clinical presentation of colonic polyps</li> <li>• Approach to patients with colonic Polyps.</li> </ul>  |
| 21 | Colorectal cancer    | <ul style="list-style-type: none"> <li>• Epidemiology of colorectal cancer.</li> <li>• Inherited colorectal carcinoma (familial adenomatous polyosis (FAP), attenuated FAP, Lynch syndrome (HNPCC), non-syndromatic familial colorectal cancer)</li> <li>• Prevention of colorectal carcinoma (screening methods &amp; surveillance).</li> <li>• Staging &amp; pre-operative evaluation of colorectal carcinoma.</li> <li>• Therapy of colorectal carcinoma (principles of resection, stage specific therapy) &amp; follow up of patients.</li> <li>• Rare colorectal carcinomas (carcinoid tumor, lipoma, lymphoma, leiomyoma &amp; leiomyosarcoma).</li> </ul> |
| 22 | Diverticular disease | <ul style="list-style-type: none"> <li>• Describe the clinical findings of diverticular disease, differentiating the symptoms and signs of diverticulitis and diverticulosis.</li> <li>• Discuss complications of diverticular disease and their appropriate treatment risk factor for diverticular disease.</li> <li>• Describe clinical findings and presentation as well as treatment of mesenteric ischemia.<br/>Discuss massive lower GI bleeding including differential diagnosis, initial management, appropriate diagnostic tests and treatment.</li> </ul>  |
|    | Anorectal anatomy &  | <ul style="list-style-type: none"> <li>• Anatomy of the colon, rectum &amp; anal canal.</li> <li>• Layers of the colon and rectum.</li> </ul>  |

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| 23 | physiology                 | <ul style="list-style-type: none"> <li>• Colorectal &amp; anorectal vascular supply, lymphatic drainage &amp; nerve supply.</li> <li>• Clinical evaluation (endoscopy and imaging studies).</li> </ul> <p>Physiology of the anal sphincter.</p>  |
| 24 | Anal and perianal disease  | <ul style="list-style-type: none"> <li>• Discuss the anatomy of hemorrhoids, including the four grades encountered clinically; differentiate internal and external hemorrhoids.</li> <li>• Discuss the etiologic factors and predisposing conditions in the development of hemorrhoidal disease.</li> <li>• Describe the symptoms and signs of patients with external hemorrhoids; with internal hemorrhoids.</li> <li>• Outline the principles of management of patients with symptomatic external and internal hemorrhoids, including the roles of non-operative and operative management.</li> <li>• Discuss the role of anal crypts in perianal infection, and describe the various types of perianal infections.</li> <li>• Outline the symptoms and physical findings of patients with perianal infection.</li> <li>• Outline the principles of management of patients with perianal infections, including</li> <li>• The role of antibiotics, incision and drainage, and primary fistulectomy.</li> <li>• Define fissure-in-ano.</li> <li>• Describe the symptoms and physical findings of patients with fissure- in-ano.</li> <li>• Outline the principles of management of patients with fissure-in-ano.</li> </ul> |
| 25 | Cholecystitis& cholangitis | <ul style="list-style-type: none"> <li>• Describe the signs and symptoms in a patient with biliary colic. Contrast these symptoms with those of acute cholecystitis.</li> <li>• Describe the pathophysiology of Cholecystitis &amp; cholangitis.</li> <li>• Describe the signs and symptoms in a patient with biliary colic. Contrast these symptoms with those of acute cholecystitis.</li> <li>• Outline the medical and surgical management of</li> </ul>   |

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|    |                      | <p>a patient with acute cholecystitis.</p> <ul style="list-style-type: none"> <li>• Outline the medical and surgical management of a patient with acute cholecystitis.</li> </ul>  |
| 26 | Gallstones           | <ul style="list-style-type: none"> <li>• List the common types of gallstones and describe the pathophysiology leading to their formation.</li> <li>• List several diseases that predispose to gallstones.</li> <li>• Describe the likely natural history of a young patient with asymptomatic gallstones.</li> <li>• Describe the likely natural history of a young patient with asymptomatic gallstones.</li> <li>• Describe the likely natural history of a young patient with asymptomatic gallstones.</li> <li>• Describe the likely natural history of a young patient with asymptomatic gallstones.</li> </ul> |
| 27 | Jaundice             | <ul style="list-style-type: none"> <li>• Definition of jaundice</li> <li>• Classification of the etiology of jaundice (pre-, intra-, &amp; post- hepatic causes).</li> <li>• Risk factor for jaundice</li> <li>• complications of jaundice</li> <li>• Management of certain causes</li> </ul>  |
| 28 | Portal hypertension  | <ul style="list-style-type: none"> <li>• Definition of portal hypertension</li> <li>• Causes of portal hypertension (presinusoidal, sinusoidal &amp; post- sinusoidal)</li> <li>• Clinical presentation of patients with portal hypertension</li> <li>• Acute bleeding in patients with portal hypertension &amp; prevention of rebleeding.</li> <li>• Budd-Chiari syndrome.</li> <li>• Management of portal hypertension &amp; porto-systemic shunts</li> <li>• .</li> </ul>  |
| 29 | Hydatid cyst disease | <ul style="list-style-type: none"> <li>• Discuss the lifecycle of hydatid cyst (hepatic and pulmonary)</li> <li>• List the relevant tests to diagnose hydatid cyst (plain X-Ray, U/S, CT, and serology).</li> <li>• Outline the methods of treatment</li> </ul>  |

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| 30 | Acute and chronic<br><br>Pancreatitis & Pancreatic tumors | <ul style="list-style-type: none"> <li>• Classify pancreatitis on the basis of the severity of injury to the organ.</li> <li>• List four etiologies of pancreatitis.</li> <li>• Describe the clinical presentation of a patient with acute pancreatitis, including indications for surgical intervention.</li> <li>• Discuss at least five potential early complications of acute pancreatitis.</li> <li>• Discuss four potential adverse outcomes of chronic pancreatitis as well as surgical diagnostic approach, treatment options, and management.</li> <li>• Discuss the criteria used to predict the prognosis for acute pancreatitis.</li> <li>• Discuss the mechanism of pseudocyst formation with respect to the role of the duct and list five symptoms and physical signs of prognosis.</li> <li>• Describe the diagnostic approach to a patient with a suspected pseudocyst, including indications for and sequence of tests.</li> <li>• Discuss the natural history of an untreated pancreatic pseudocyst as well as the medical and surgical treatment.</li> <li>• List four pancreatic neoplasms and describe the pathology of each with reference to cell type and function.</li> <li>• Describe the symptoms, physical signs, laboratory findings, and diagnostic workup of a pancreatic mass on the basis of the location of the tumor in the pancreas.</li> <li>• Describe the surgical treatment of pancreatic neoplasms.</li> <li>• Discuss the long-term prognosis for pancreatic cancers on the basis of pathology and cell type.</li> </ul> |
| 31 | Liver tumors  | <ul style="list-style-type: none"> <li>• Benign solid liver tumors (hepatic adenoma, focal nodular hyperplasia, hemangiomas, bile duct hamartomas)</li> <li>• Hepatocellular carcinoma pathophysiology.</li> <li>• Risk factors for hepatocellular carcinoma.</li> <li>• Diagnoses and investigation of hepatic neoplasm.</li> </ul>  |

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|  |                                    | <ul style="list-style-type: none"> <li>• Indications for liver tumor resection.</li> <li>• Liver metastasis.</li> </ul>   |
| <b>Endocrine and Head and Neck surgery</b> |                                    |   |
| 1  | Anatomic review of the head & neck | <ul style="list-style-type: none"> <li>• Neck triangles (anterior &amp; posterior: submental &amp; submandibular)</li> <li>• Blood supply, lymphatic drainage &amp; major head &amp; neck vessels.</li> <li>• Fascias &amp; muscles of the neck.</li> <li>• Sensory innervations of the head and neck.</li> </ul>   |
| 2  | Neck swellings                     | <ul style="list-style-type: none"> <li>• How to take history and perform full physical examination of patients with neck swellings.</li> <li>• Diagnostic approaches to neck swellings according to the patients' presentations.</li> </ul>   |
| 3  | Salivary glands                    | <ul style="list-style-type: none"> <li>• Anatomic review of the salivary glands &amp; related structures.</li> <li>• Physiologic review of the salivary glands.</li> <li>• Neoplasms arising from salivary glands (benign vs. malignant, histological classification &amp; clinical manifestations of each)</li> <li>• Modalities of treatment of low grade salivary glands malignancies.</li> <li>• Modalities of treatment of high grade salivary glands malignancies.</li> <li>• Types of neck dissection.</li> <li>• Complications of surgical treatment of parotid gland tumors.</li> <li>• Infections of the salivary glands (parotitis, submandibular sialadenitis).</li> <li>• Sublingual &amp; minor salivary glands disorders.</li> </ul> |
| 4  | Branchial anomalies                | <ul style="list-style-type: none"> <li>• Embryological development of branchial arches.</li> <li>• Branchial cysts (types, sites of presentation, age of presentation, differential diagnosis, clinical manifestations &amp; treatment).</li> <li>• Cervical auricle.</li> <li>• Branchial fistulae (definition, site of presentation, age of presentation, differential diagnosis, clinical manifestations &amp; treatment).</li> </ul>  |

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| 5 | Neck injury                              | <ul style="list-style-type: none"> <li>• Types of injuries (lacerations, stab wounds, burns &amp; gun shoots)</li> <li>• Severity of the injury according to the site.</li> <li>• Approach to patients with neck injury.</li> <li>• Immediate management for patients with airway obstruction.</li> <li>• Trauma zones of the neck &amp; specific treatment options according to the zone.</li> <li>• Neck hematomas &amp; its management.</li> </ul>  |
| 6 | Parathyroid glands                       | <ul style="list-style-type: none"> <li>• Embryological development of the parathyroid glands.</li> <li>• Surgical anatomy of the parathyroid glands and related structures.</li> <li>• Physiological review of the parathyroid glands &amp; serum calcium.</li> <li>• Primary hyperparathyroidism due to parathyroid adenoma, hyperplasia or carcinoma (clinical manifestations, diagnosis &amp; management)</li> </ul>  |
| 7 | Thyroid gland and thyroglossal disorders | <ul style="list-style-type: none"> <li>• Thyroid examination.</li> <li>• Describe the symptoms of a patient with hyperthyroidism; discuss the differential diagnosis and treatment options.</li> <li>• Understand the major risk factors for carcinoma of the thyroid gland and the prognostic variables that dictate therapy.</li> <li>• List the different types of carcinoma of the thyroid gland and their cell type of origin; discuss the appropriate therapeutic strategy for each.</li> <li>• Discuss the evaluation and differential diagnosis of a patient with a thyroid nodule.</li> </ul> |
| 8 | Adrenal surgical disorders               | <ul style="list-style-type: none"> <li>• Physiological review.</li> <li>• List and discuss three major adrenal dysfunctions, their clinical presentation, etiology, diagnostic procedures, and treatment options.</li> <li>• Describe the clinical features of Cushing's syndrome and tell how causal lesions in the pituitary, adrenal cortex, and extra-adrenal sites</li> </ul>   |

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|   |                              | <p>may be distinguished from a diagnostic standpoint.</p> <ul style="list-style-type: none"> <li>• Discuss medical and surgical and surgical management of Cushing's syndrome in patients with adrenal adenoma and with pituitary adenoma causing adrenal hyperplasia, with an ACTH-producing neoplasm.</li> <li>• Describe the likely pathology, clinical features, and laboratory findings of a patient with hyperaldosteronism.</li> <li>• Discuss the diagnostic workup of a patient with suspected hyperaldosteronism and the preferred operative treatment.</li> <li>• Discuss pheochromocytoma, including its associated signs and symptoms, an appropriate diagnostic workup, and its treatment.</li> <li>• Describe the features of the multiple endocrine adenopathy syndrome associated with pheochromocytoma.</li> <li>• Discuss the possible causes of virilization in a patient, including the clinical presentation and diagnostic workup.</li> <li>• Describe the multiple endocrine neoplasia syndromes and their surgical treatment.</li> </ul> |
| 9 | Surgical aspects of diabetes | <ul style="list-style-type: none"> <li>• Physiological review of the pancreas and the risk factors, types, management &amp; medical complications of diabetes.</li> <li>• Skin &amp; nails problems of diabetes &amp; their management.</li> </ul> <p>Charcot joint deformity (development, common sites, diagnosis &amp; management).</p> <ul style="list-style-type: none"> <li>• Rocker bottom deformity (development, common sites, diagnosis &amp; management).</li> <li>• Diabetic foot ulcers (etiology, pathophysiology, points to stress on in history &amp; physical examination, grades of ulcers, management, follow up &amp; outcome).</li> </ul>  |