ANALYTICAL PROGRAM.

1. Identification data:	
• Name of the institution and the department (on official stationery of the department)	Autonomous University of Nuevo Leon, Faculty of Medicine.
• Name of the learning unit	Surgical Sciences II (Plastic Surgery, Traumatology and Urology)
• Classroom hours-theory and/or practice, total	500 hours.
• Total classroom overtime hours	120 hours.
• Modality (school, non-school, mixed)	Schooled.
• Type of academic period (Semester or tetramester)	10th Semester.
• Type of learning unit (mandatory/optional)	Mandatory.
• Curricular Area (ACFGU, ACFB, ACFP-F, ACFP-I)	ACFP-I.
• UANL Credits (whole numbers)	24.
• Date of preparation (dd /mm/ yy)	08/2017
• Last update date (dd /mm/ yy)	07/30/2019
• Design Manager(s):	Dr. Mauricio Manuel Garcia Perez. Dr. Victor Manuel Pena Martinez. Dr. med . Adrián Gutiérrez González. Dr. Iram Zeyn Gonzalez Vargas. Dr. José Guadalupe Mendoza Mendoza . Dr. Fernando Hernandez Galvan.

2. Presentation:

The Surgical Sciences II learning unit is a core area in the training of Surgeons and Midwives, as it fosters the educational process that goes from identification to evaluation, which implies the integration of basic and clinical knowledge, using teaching and learning activities developed in simulated and real scenarios. This learning unit is located in the tenth semester and comprises three stages.

Stage 1 refers to Plastic Surgery , where the student analyzes his or her main conditions and is trained for initial management and basic procedures.

Stage 2, referring to Traumatology, trains the student in the recognition of the main pathologies and their initial management in the most frequent traumatic conditions in the first level of care, as well as their proper referral.

Stage 3 deals with Urology, which analyzes the prevention, diagnosis and treatment of diseases and disorders of the male genitourinary system and the female urinary system.

Surgical Sciences II culminates with the Integrative Learning Product, which refers to the integration of a portfolio of clinical learning evidence on Plastic Surgery, Traumatology and Urology.

3. Purpose(s)

The learning unit of Surgical Sciences II is carried out in the tenth semester, belongs to the Curricular Area of Integrative Professional Training and comprises a core area in the training of the physician in the Study Plan of Physician, Surgeon and Midwife, is part of an educational process in which basic and clinical knowledge is integrated in a multidisciplinary way, developing specific clinical competencies, which implies the promotion, evolution and consolidation of intellectual skills, with an integrative perspective: clinical reasoning (analysis, synthesis and evaluation), procedural skills and attitudinal skills, which prepares the student to successfully perform the required medical-surgical activities.

Its curricular relationship requires knowledge of the structure and function of the human body through the study of Anatomy, Physiology, Histology, Embryology, Microbiology, Biochemistry and Molecular Biology, Pathology, Clinical Pathology, Imaging, Quality and Safety in Care, in order to correlate said knowledge for the evaluation and solution of clinical-surgical problems, through the correct elaboration of a clinical history and an intentional physical examination, combined with the interpretation of laboratory and imaging studies. It also requires knowledge of Pharmacology and Toxicology that allows the correct selection of treatment, taking into account their interactions , as well as with Bioethics for making pertinent decisions in its area of influence .

Regarding the general competences of the University, this learning unit promotes the use of formal language, the correct use of language; the use of logical and critical thinking that allows students to make decisions within their sphere of influence; the use of computer tools; and autonomous learning is privileged, which will allow them to consolidate their disciplinary and personal training. Regarding the specific competences of the profession, it contributes to scientific knowledge and its applicability through the clinic. Likewise, effective communication with patients, their families and other professionals is promoted, in addition to knowing how to work in a multidisciplinary team and always practicing medical ethics, respect, confidentiality and social commitment.

The biopsychosocial perspective is reinforced by treating the patient as a human being with a family and social context and not just treating the disease in isolation.

4. State the competencies of the graduate profile

a. General Competencies to which this learning unit contributes

C o m p e t e n ces I n s t r u m e n t a l s:

1. Apply strategies of learning autonomous in the different levels and fields of the knowledge that you let me the take of decisions opportune tunas and pertinent in the areas staff , academic and professional .

3. Drive the technologies a n d the information and the communication a s a tool for he access to the information and his transformation into knowledge , as well as for he learning and work collaborative with techniques of vanguard that you let me his stake const r uct i ve in society .

4. Sunday his language mate r n a in shape or to the and w ritten with co r r e c t i o n , r elevation , opportunity and ethics adapting his message to the situation either context , for the transmission of ideas and find a z gos scientists .

5. Using thought logical , critical , creative and p r o p o s i t i v e for analyze phenomena natural and social that you let me take decisions relevant to his sco pe of influence with responsibility social .

6. Use a s e c o n d language , preferably he English , with cla r i ty and co r r e c t i o n for c ommunicate in c o n t e n t s everyday , academics, p rofes i onals and scientists .

7. Elaborate P r o p o s t i o n s academ i cs and p r o f e s i o n als i nte r , multi yt r ansd i sc i p l i na r i as de agreement to the better is p r a c t i c s world and animals to promote and with s o l l i n g he job collaborator .

8. Use the methods and techniques of investigation t r ad i c i onal and of van guard for he development of his job academic , the exercise of his profession and the generation of knowledge .

C o m p e t e n ces p e r s o n als and of interaction social :

9. Keep a attitude of c o m p r o m m i n e t a n d l respect toward the diversity of practices social and cultural that r e a f f i r m a n he principle of i nteg r a t i o n in the conte x to local, national and i n t e r n a t i o nal with the purpose of p romote environments of coexistence peaceful .

10. Intervene in the face of the challenges of contemporary society at the local and global levels with a critical attitude and human, academic and professional commitment to contribute to consolidating general well-being and sustainable development.

11. Practice the values promoted by the UANL: truth, equity, honesty, freedom, solidarity, respect for life and others, respect for nature, integrity,

ethics professional , justice and r esponsab i l i ty, in its scope staff and p r o f e s i o n al f o r a contribute to build a sustainable society .

C o m p e t e n ces i n t e g r a d o rs :

12. Const r uir proposals i nnovative based in understanding holistic of the reality for c o n t r i b u i t e get over the challenges of the atmosphere global inter dependent .

13. To assume he l i de r a z go engaged with the needs social and professionals for promote he change socially relevant .

14. Solve conflicts persons and social l agree to techniques specific in he Scope academic and of his p r o f e s i o n f o r the adequate take of decisions .

15. Achieve the adaptability that is required in social and professional environments of i nce r t i dumb r e of our time for create better conditions of life .

b. Specific competencies of the graduate profile to which the learning unit contributes

Scientific Basis of Medicine

1. Use the scientific foundations of medicine considering the economic, psychological, social, cultural and environmental factors that contribute to the development and evolution of the disease for medical decision-making and actions.

Professional Clinical Practice

2. Solve clinical problems through deductive reasoning, interpretation of findings and definition of their nature in order to make decisions and determine principles of action of medical practice to follow responsibly, impacting individual and collective health.

3. Evaluate the development and evolution of the disease through the analysis of biomedical information and related physical, social and cultural factors, promoting health education and encouraging preventive medicine.

4. Appropriately manage patients with the most common diseases, from a biopsychosocial perspective, through the application of knowledge, technical procedures and basic diagnoses, based on clinical guidelines and care protocols, to solve the main health problems of the first level of care of the individual and the community.

5. Manage common medical emergencies, applying minor treatment, procedures and interventions and referring patients requiring critical care to preserve life in an appropriate and timely manner.

6. Manage human resources, diagnostic interventions, therapeutic modalities and health care options according to national standards, promoting a culture of quality care and ensuring patient safety.

Critical Thinking and Research

7. Apply the scientific method in solving medical problems with an innovative, analytical and self-critical attitude in the prevention, diagnosis and treatment of diseases.

8. Integrate professional values and ethics into medical practice, without distinction of gender, race, political and sexual preferences, religious beliefs, activities performed, different abilities or socioeconomic status, promoting social inclusion and contributing to the well-being of the population, quality of life and human development.

Professional Values and Ethics

9. Respect the integrity of the patient by preserving their medical information as a fundamental part of professional confidentiality, in order to protect their rights.

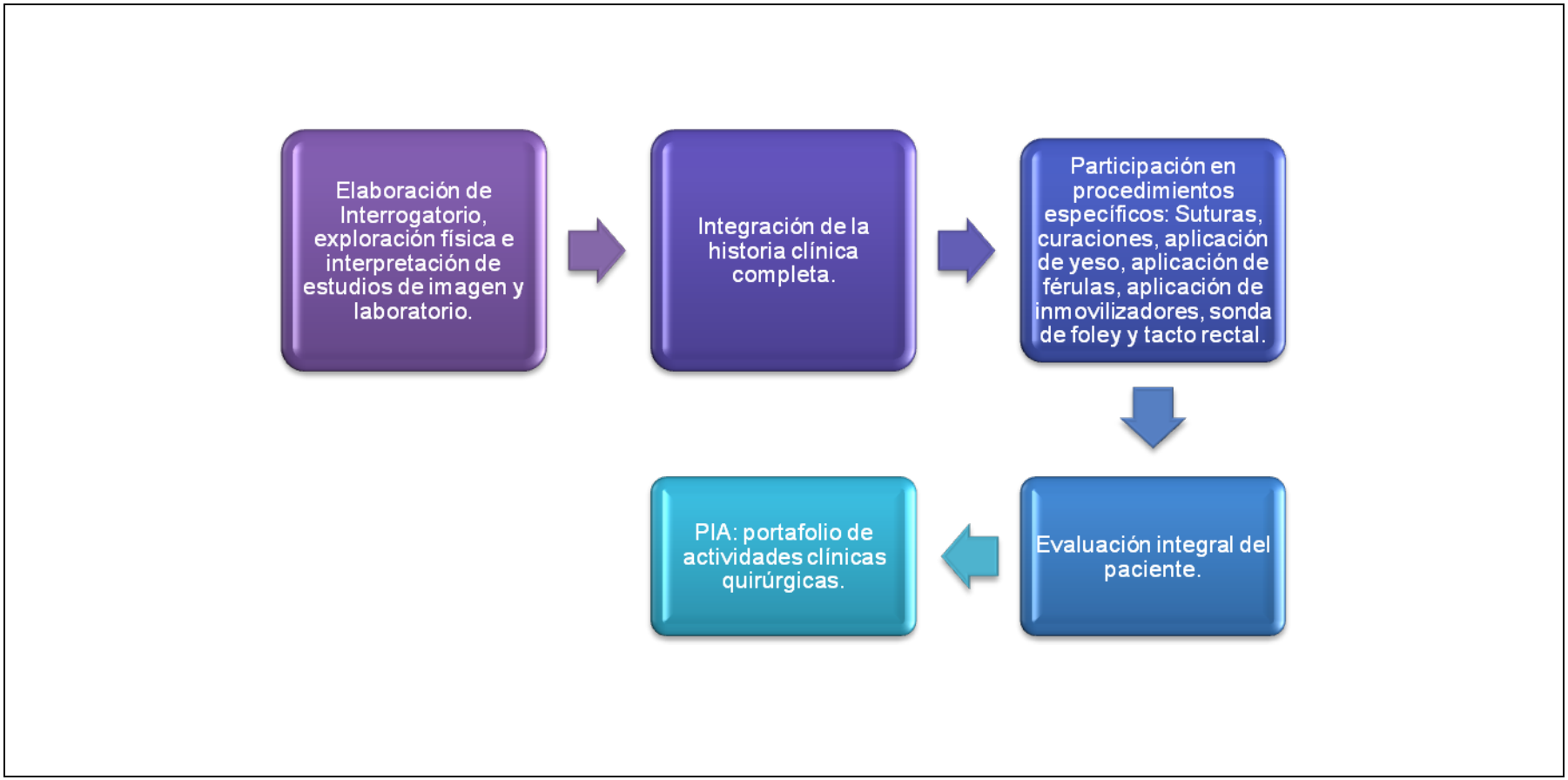
Organizational Work

10. Promote the culture of organizational work in the health field, recognizing multidisciplinary work, respect for institutional policies and compliance with regulations, in order to contribute to the comprehensive treatment of patients.

Communication

11. Apply the principles of effective communication by establishing a relationship of respect and empathy with the patient, their family members, the community and other health professionals, in order to use information appropriately.

5. Graphical representation:



6. Structuring the learning unit into chapters, stages, or phases

Stage 1. Plastic Surgery.

Competition element:

Recognize the conditions related to Plastic and Reconstructive Surgery by evaluating patients in order to provide initial treatment and/or refer them to third-level medical units to complete their clinical diagnosis and medical and/or surgical treatment.

Evidence of learning	Performance criteria	Learning activities	Contents	Resources
Performance evaluation in clinical practice of Plastic Surgery.	**Sutures:** (Simple points, Horizontal mattress, Vertical mattress): • Coapta edges. Unevenness at the lips of the wound is imperceptible. • He is able to do it without help. **Healings:** **a) Suture removal (face, hand, rest of the body):** Determines the time and removes it depending on the affected body area. **b) Placement of hand splints (intrinsic plus , functional, flexion):** Establishes the indications and the correct position of the hand.	Presentation of the contents orally, with visual support. In the oral presentation, the teacher maintains interaction with the students by integrating the strategy of direct questions in relation to the knowledge obtained in the individual review of the material. The teacher shows clinical examples and asks analysis questions to corroborate the integration of concepts. Exemplification of pathologies by the teacher. Interaction with students through questions with content derived from the case or example presented.	**Conceptual Content** **Unit 1.** **Principles, techniques and basic sciences.** Techniques and principles in plastic and reconstructive surgery. Cicatrization. **Unit 2.** **Skin and soft tissues.** Approach to the burn patient. Reconstruction in the burn patient. **Unit 3.** **Congenital anomalies and pediatric plastic surgery.**	• Classrooms of the Faculty of Medicine. • CEVAM • Outpatient clinic and hospitalization room for Plastic Surgery, University Hospital, UANL. • Textbooks. • Reference books. • Research articles. • Internet. • Computer. • Projector. • Presentations in PowerPoint format.

	c) Attitude: • He is respectful towards patients, medical and nursing staff, as well as his colleagues. • Attend and participate in the activities assigned to you, in a timely manner. **<u>Guard:</u>** • Comprehensive wound management (wound suturing). • He/she is able to make referrals and consultations,	Students correlate their basic knowledge with the demonstrations presented and draw conclusions. The problem-based learning strategy is used by transforming an already known situation with some variations and which the students will have to solve either in discussion sessions, in class or during the visit. Students perform rotations in the Plastic and Reconstructive Surgery room and the professor verifies the integration of theoretical concepts in the patients seen during said rotation. Students rotate in the Plastic and Reconstructive Surgery outpatient clinic in the healing area to observe the healing	Congenital anomalies and plastic surgery in pediatric patients. **Unit 4.** **Head and neck.** Maxillofacial trauma. **Unit 6. Oncology** Principles of oncological reconstruction, reconstruction in skin cancer. Breast reconstruction. **Unit 8. Hand.** Pathology and surgical approach to hand trauma. Infectious and inflammatory pathology of the hand. **Unit 5.** **Cosmetic Surgery.** Aesthetics.	• Videos. • Whitewash .

	according to the severity of the injury (complex wounds to the face, hand, other areas and burns). • Attitude. **<u>Rotation in the Room:</u>** • Submit the complete medical history. • Review of the patient's medical history: *Personal data. *Background. *PEEA. *Diagnosis. *Treatment. • Patient's illness: *What is it? *How common is it? *How is it diagnosed? *How is it treated? • Patient healing process.	procedure and learn the materials and then apply the content to develop the clinical skills described.	**Procedural Content** Identify wounds that are susceptible to management in primary care centers and those that merit referral to specialized centers. Application of healing material to different types of wounds to promote wound healing in the shortest possible time and with the least amount of discomfort to patients. Perform simple sutures in biological product and in patients with simple wounds that allow repair of uncomplicated wounds. Management of burn patients in the acute stage in primary care centers.	

	• Student attitude. **<u>Consultation:</u>** **Integration of medical records:** • Conduct the interrogation • Review of the patient's medical history: Personal data. Background. PEEA. Diagnosis. Treatment. • He is able to assess which laboratory and office studies to request for the correct diagnosis of the patient. • Interpret in a way correct clinical findings and laboratory and cabinet studies. • Establish a clinical diagnosis.		Properly identify the most common hand injuries to provide management initial. Case analysis of burn patients, focusing on their initial management. Describe the initial care of a patient with a hand injury, describe the diagnosis and treatment . Perform a critical analysis of the scientific evidence on the management of a patient assigned to a floor. **Attitudinal Content** Respect for the patient, medical and nursing staff, as well as colleagues.	

	• It is capable of establishing an initial treatment. • He is respectful towards patients, medical and nursing staff, as well as his colleagues. • Arrive on time and presentable for the start of the consultation		Responsibility and cooperation with the patient, medical and nursing staff. Attendance and participation in the activities assigned to you, in a timely manner. Confidentiality in the handling of information. Respect the dress code.	

Stage 2. Traumatology.

Competition element:

To recognize the most frequent traumatology disorders in the first level of care through the preparation and analysis of the clinical history, as well as their clinical manifestations, in order to provide adequate initial treatment and regulate referral criteria to third level medical units.

Evidence of learning	Performance criteria	Learning activities	Contents	Resources
Performance evaluation in clinical practice of Traumatology.	**Correctly perform the following:** **Activities on Guard:** • Visiting pass.	During the theoretical classes, the teacher develops the topic to be discussed through exposition with the support of a visual presentation, asking direct	**Conceptual Content** **General concepts:** 1.- Generalities of fractures. Principles of the AO. AO classification. 2.- Exposed fractures.	• Classrooms of the Faculty of Medicine. • CEVAM. • Outpatient clinic no. 15, University Hospital.

	• Preparation of the complete medical history: *Interrogation. *Physical examination. *Indicates and interprets imaging and laboratory studies. * Presumptive diagnosis. • General care of the hospitalized patient: *Summarizes and presents the patient's conditions. *Assists in healing. • He is respectful towards patients, medical and nursing staff, as well as his colleagues.	questions to the students and they in turn will have the opportunity to express their doubts. In the practical workshops, students perform basic procedures that are essential for general practitioners. He attends the consultation and the confinement rooms where he observes and collaborates in the application of cures. The visit is carried out where the student observes and participates with the teacher.	Gunshot wounds. 3.- Osteoarthritis of the hip and knee. 4.- Septic arthritis, osteomelitis , metaphyseal osteomyelitis . 5.- Bone and tissue bank. 6.- Fractures in pediatric patients -Generalities. - Epiphysiolysis . **Column:** 7.- Cervical and lumbar sprain. Low back pain. 8.- Cervical fractures. Thoracolumbar fractures. 9.- Scoliosis. Spondylolisthesis. Spondylodiscitis . **Upper limb:** 10.- Clavicle fractures. Acromioclavicular joint injuries. Glenohumeral dislocation.	• Detention Rooms • Textbooks. • Reference books. • Research articles. • Internet. • Computer. • Projector. • Presentations in PowerPoint format. • Videos.

	• Attend and participate in the activities assigned to you, in a timely manner. **Practical demonstration in the following workshops:** • Bandage Placement: -Take the bandage correctly. -Apply the bandage correctly. -The bandage covers 50% of the previous one. -Apply proper tension to the bandage. • **Application of plaster splints:**		Proximal humerus fractures. 11.- Diaphyseal fractures of the humerus. Elbow dislocation. Diaphyseal fractures of the radius and ulna. Distal radius fractures. **Pelvis and lower limb:** 12.- Pelvic fractures. Acetabular fractures. Femoral neck fractures. Intertrochanteric fractures . Subtrochanteric fractures . 13.- Fractures of the femoral shaft. Fractures of the tibial diaphysis. Hip dislocation and femoral head fractures. Avascular necrosis of the femoral head. Femoroacetabular impingement . **Knee** 14.- Patella fractures.	

	-Use appropriate bandage sizes for the upper and lower limbs. -Apply the huata bandage properly to the flexion points. • **Immobilizers:** **-** Place the collar properly. **-** Properly place immobilizers on the upper limb. **-** Properly place immobilizers on the lower limb. • **Skin traction management** : - Request the appropriate material for skin traction. -Appropriately place skin traction on the upper limb.		Fractures of the distal end of the femur. Tibial plate fractures. 15.- Meniscal injuries. Ligament injuries of the knee. Anterior cruciate ligament rupture. Posterior cruciate ligament rupture. Rupture of collateral ligaments of the knee. Chondral lesions of the knee. **Foot and Ankle** 16.- Ankle sprain. Ankle fractures. Tibial plateau fracture. Calcaneal fracture. 17.- Lisfranc fractures . Posterior tibial insufficiency. Charcot foot. Hallux Valgus . **Pediatric orthopedics** 18.- Flat foot. Developmental dysplasia of the hip.	

	-Appropriately place skin traction on the lower limb. • **Activities in Emergency:** -Identifies the clinical data of the patient with musculoskeletal system injuries. -Actively collaborates in the immobilization of the patient. -Discuss with the Professor and Resident the patients with trauma pathology. -Performs clinical history in uncomplicated patients (hip and limb fractures). -He/she treats patients, medical and nursing staff, and colleagues with respect. • **Activities in the room:**		Proximal femoral epiphyseal slippage. Perthes disease . Pediatric supracondylar humeral fractures . Fractures of the distal end of the forearm. Diaphyseal fractures of the radius and ulna. Fracture dislocation of the proximal end of the forearm. Femur fractures. **Bone tumors.** **20.-** Nodular villous synovitis. Osteosarcoma. Ewing sarcoma. Chondrosarcoma. Osteochondroma. Simple bone cyst. Aneurysmal bone cyst. **Procedural Content**	

	- Use appropriate equipment for healing (protection and healing material). -Review skin and/or skeletal tractions. -Ensures that instructions regarding immobilization and therapy are followed. -Properly make notes in the file under the authorization and supervision of the Professor and Resident. -He/she treats patients, medical and nursing staff, and colleagues with respect. • **Activities under consultation:** - Explain the concept to be discussed. - Mention the etiology of the pathology. - Has ideas of clinical correlation between		Evaluation through the preparation of the clinical history: • Interrogation. • Physical examination. • Interpretation of imaging and laboratory studies. • Presumptive diagnosis. Presentation of medical records and clinical summaries. Placing bandages. Application of plaster splints and immobilizers. Skin traction management. **Attitudinal Content**	

	physical examination and pathology. - Interprets and/or requests imaging and laboratory studies. - Mention treatment options.		Attendance and participation in the activities assigned to you, in a timely manner. Confidentiality in the handling of information. Respect the dress code. Responsibility. Ethical commitment. Respect and tolerance for cultural diversity.	
Stage 3. Urology **Competition element:** Identify urological pathologies in patients who may require specific treatments, by integrating the clinical history and urological examination, in order to provide initial treatment and/or be referred to third level medical units to complete the clinical diagnosis, and medical and/or surgical treatment.				
Evidence of learning	**Performance criteria**	**Learning activities**	**Contents**	**Resources**

Practical demonstration of urology procedures.	**Perform a digital rectal exam correctly:** Performed on a simulator and/or patient in the consultation • Greet the patient. • It is presented with the patient. • Informs the patient what it consists of. • Follow the steps of the technique properly • Place the patient in the appropriate position. • Apply lubricating jelly to the glove. • Describe what you find on digital rectal examination. • Treat the patient with respect **Correctly place the**	Resolution of clinical cases through an electronic platform. Review of topics through audiovisual tools. The teacher maintains interaction with the students in relation to the knowledge obtained by reviewing the material individually. Presentation of clinical cases with diagnostic and treatment management options The teacher corroborates the integration of concepts and provides clinical examples. The student applies the knowledge acquired from the class in clinical activities. The teacher uses strategies based on critical thinking and values, so that together with the students they integrate the proposed ideas,	**Conceptual Content** Semiology and urological examination. Kidney and bladder cancer. Prostate and testicular cancer . Lithiasis diagnosis and treatment. Prostatic hyperplasia. Urinary tract infection. Orchitis, epididymitis and prostatitis. Micturition dysfunction. Uropaediatrics . Male infertility. **Procedural Content** Take medical history, attending urology consultation. Prepare written reports on the consultation topics.	• Classrooms of the Faculty of Medicine. • CEVAM. • Textbooks. • Reference books. • Research articles. • Internet. • Computer. • Projector. • Presentations in PowerPoint format. • Videos. • Whitewash .

	Foley catheter: • Performed on a simulator and/or patient in the office and/or operating room • Greet the patient. • It is presented with the patient. • Informs the patient what it consists of. • Place the patient in the appropriate position. • Prepare the material appropriately. • Follow the steps of the technique correctly: 1. Cleanse the skin with Isodine. 2. Apply lubricating jelly to the tip of the probe. 3. Insert the probe properly. 4. Inflate the balloon	generating a conclusion and feedback.	Discusses clinical cases seen in the consultation. Performs Foley catheter placement and digital rectal examination on simulators. **Attitudinal Content** Respect for the patient, medical and nursing staff, as well as colleagues. Responsibility and cooperation with the patient, medical and nursing staff. Attendance and participation in the activities assigned to you, in a timely manner. Confidentiality in the handling of information. Respect the dress code.	• Rectal examination and Foley catheter placement simulators.

	on the tube. 5. Connect the collection bag to the probe. 6. Secure the probe. 7. Treat the patient with respect.			

7. Comprehensive evaluation of processes and products (weighting/summative evaluation).

- Evaluation of performance in clinical practice of Plastic Surgery…60%:
  - Guards……17%
  - Consultation……7%
  - Healings……9%
  - Floor……13%
  - Suture workshop……5%
  - Hand workshop……3%
  - Burn workshop……3%
  - Craniofacial workshop……3%
- Logbook……10%
- Exam……30%

- Evaluation of performance in clinical practice of Traumatology…50%:
  - Guards……25%
  - Consultation/Room……12.5%
  - Workshops ……12.5%

- Exam……50%

- Practical demonstration of Urology procedures……40%
    - Consultation ……25%
    - Operating room……25%
    - Room (discussion)…… 25%
    - Workshops (2 of 12.5 each) ……25%
- Exams (10 assessments of 6pts. each) ……60%

Total (average of the three stages) ……100%

*Each of the activities corresponding to each stage of the Analytical Program must be passed with a minimum of 70.

*To pass each stage it will be necessary to pass both the theory and the practice independently, this means that you must obtain at least a grade of 70 in theory and 70 in clinical practice.

*If in either of the two areas (theory or practice) you obtain a grade lower than 70 you will automatically fail.

*If the requirement of passing each stage is met, with a score of at least 70, the grade is obtained from the average of the corresponding stages.

For the evaluation of the clinical activity of Traumatology, the student must download the document "* **EVALUATION INSTRUMENTS FOR CLINICAL PRACTICE *" from the official platform of the Faculty of Medicine (Traumatology), print it and attach a color child-sized photograph, then take it during the first 5 business days of the rotation, to the Traumatology Service in the Undergraduate area to stamp and make said document official.*

The student is responsible for the care and delivery of the evaluation sheet to the person in charge of each area for the corresponding evaluation. At the end of the rotation, only a 5-day period will be given for the delivery of the evaluation sheet.

8. Integrating product of the learning unit.

Portfolio of clinical surgical evidence.

9. Sources of support and consultation (bibliography, newspapers, electronic sources).

Surgery Plastic

Base book: Grabb and Smith's Plastic Surgery. 7th Edition.

Plastic and Reconstructive Surgery Journal

PubMed.gov

Traumatology

Traumatology and Orthopedics, Basic Principles. Department of Traumatology and Orthopedics, “Dr. José Eleuterio González” University Hospital. Ed. Cerro de la Silla Editores, 2019.

Sabiston . Treatise on Surgery: Fundamentals of modern surgical practice. 19 ed. Barcelona (Spain): GEA Consulting Publishing, SI; 2013.

RB Salter . Musculoskeletal System Disorders and Injuries. 2nd edition. Barcelona (Spain): Masson; SA 1986.

Campbells . Operative Orthopedics . 13th edition Volume 2. Memphis Tennessee : Mosby, 2017.

Urology

McAninch , JW & Lue , TF, (2014). Smith and Tanagho . General urology. San Francisco, California: Mc Graw-Hill.

Townsend , CM , Beauchamp , RD , Evers , BM & Mattox , KL (2014). Sabiston . Treatise on surgery. Elsevier

CENETEC clinical practice guidelines .

http://www.dgb.uanl.mx/?mod=health