Certificate in Surgical Technology

Surgical Equipment and Technology

A

Abdominal Surgery:
Abdominal surgery refers to surgical procedures performed on organs within the abdomen, such as the stomach, intestines, liver, and gallbladder. This type of surgery may be done for various reasons, including removing tumors, repairing injuries, or treating diseases like appendicitis.

Arthroscopy:
Arthroscopy is a minimally invasive surgical procedure used to diagnose and treat joint problems. A surgeon inserts a small camera called an arthroscope into the joint through a small incision to view the inside of the joint on a monitor. This allows for precise diagnosis and treatment of conditions like torn ligaments or cartilage.

B

Bipolar Forceps:
Bipolar forceps are surgical instruments used to coagulate tissue and control bleeding during surgery. Unlike traditional forceps, which require an additional grounding pad, bipolar forceps have both the active and return electrodes in the same instrument, allowing for more precise cauterization without the risk of burns.

C

Carbon Dioxide Laser:
A carbon dioxide (CO_2) laser is a type of surgical laser that uses a carbon dioxide gas mixture to produce a high-energy beam of light. This laser is commonly used in surgical procedures to cut, vaporize, or coagulate tissue with minimal bleeding and damage to surrounding tissue.

Central Sterile Processing:
Central sterile processing refers to the department in a healthcare facility responsible for cleaning, sterilizing, and storing surgical instruments and equipment. This area plays a critical role in preventing infections and ensuring the safety of patients undergoing surgical procedures.

D

Da Vinci Surgical System:
The Da Vinci Surgical System is a robotic-assisted surgical platform used to perform minimally invasive

procedures with enhanced precision and control. Surgeons operate the system from a console, manipulating robotic arms to perform complex surgeries with smaller incisions, reduced pain, and faster recovery times.

Electrocautery:
Electrocautery is a surgical technique that uses high-frequency electrical currents to cut, coagulate, or cauterize tissue. By applying controlled heat to the tissue, electrocautery can help control bleeding during surgery and remove unwanted tissue without excessive blood loss.

F

Fractional Laser:
A fractional laser is a type of laser used in dermatological and cosmetic procedures to improve skin texture, tone, and appearance. Unlike traditional lasers that treat the entire skin surface, fractional lasers create microscopic treatment zones, stimulating collagen production and promoting faster healing.

G

Gelatin Sponge:
A gelatin sponge is a sterile, absorbable sponge made from purified porcine gelatin used in surgical procedures to control bleeding. When placed on a bleeding site, the gelatin sponge swells and helps promote clot formation, effectively stopping the bleeding and facilitating the body's natural healing process.

H

Hemostasis:
Hemostasis refers to the body's natural process of stopping bleeding after an injury or surgical procedure. It involves blood vessel constriction, platelet aggregation, and coagulation to form a blood clot that seals the wound and prevents further blood loss.

I

Insufflator:
An insufflator is a medical device used in laparoscopic surgery to inflate the abdominal cavity with carbon dioxide gas. By creating a space between the organs and the abdominal wall, the insufflator provides better visibility for the surgeon and reduces the risk of injury during minimally invasive procedures.

J

Joint Replacement:
Joint replacement, also known as arthroplasty, is a surgical procedure to remove and replace a damaged or diseased joint with an artificial prosthesis. Common joint replacements include hips, knees, and shoulders,

improving mobility, reducing pain, and restoring function for patients with severe joint conditions.

K

Kelly Clamp:
A Kelly clamp is a surgical instrument with a locking mechanism used to grasp, compress, and manipulate tissues during surgical procedures. The curved jaws of the clamp provide a secure grip on blood vessels or tissues, allowing surgeons to control bleeding or perform delicate maneuvers with precision.

L

Laparoscopy:
Laparoscopy is a minimally invasive surgical technique that uses a laparoscope, a thin, flexible tube with a camera and light source, to view and operate inside the abdomen or pelvis through small incisions. Laparoscopic procedures offer faster recovery, less scarring, and reduced pain compared to traditional open surgery.

M

Monopolar Electrosurgery:
Monopolar electrosurgery is a surgical technique that uses a single electrode to deliver high-frequency electrical current to tissues, creating a controlled thermal effect for cutting, coagulation, or desiccation. The current flows from the active electrode through the patient's body to a grounding pad, allowing precise tissue manipulation.

N

Neurosurgery:
Neurosurgery is a specialized field of surgery that focuses on treating conditions affecting the nervous system, including the brain, spinal cord, and peripheral nerves. Neurosurgeons perform delicate procedures to remove tumors, repair injuries, and treat neurological disorders with the goal of preserving brain function and quality of life.

O

Operating Room Table:
An operating room table is a specialized piece of equipment used to support and position patients during surgical procedures. These tables are designed for flexibility, adjustability, and patient comfort, allowing surgeons to work efficiently while ensuring the safety and stability of the patient throughout the surgery.

P

Power Drill:

A power drill is a surgical instrument used in orthopedic surgery to create holes in bones for the placement of screws, pins, or implants. The drill is powered by electricity or compressed air, allowing surgeons to make precise and controlled incisions in the bone for fixation and stabilization during procedures like fracture repair.

Q

Quartz Fiber:
A quartz fiber is a flexible, light-conducting fiber optic cable used in surgical lasers and endoscopes to deliver light energy to targeted tissues. The high transmission efficiency and flexibility of quartz fibers enable precise and controlled delivery of laser energy for cutting, coagulation, and tissue ablation in minimally invasive procedures.

R

Robotic Surgery:
Robotic surgery is a minimally invasive surgical technique that uses robotic-assisted systems to perform complex procedures with enhanced precision and dexterity. Surgeons control robotic arms from a console, manipulating instruments with greater flexibility and range of motion for improved outcomes and reduced patient recovery time.

S

Sterile Technique:
Sterile technique refers to the practices and procedures used to maintain a sterile environment during surgical procedures to prevent infections and promote patient safety. This includes proper hand hygiene, wearing sterile attire, using sterile instruments, and maintaining a sterile field to minimize the risk of contamination during surgery.

T

Titanium Instruments:
Titanium instruments are surgical tools made from titanium alloy, known for their strength, durability, and biocompatibility. These instruments are lightweight, resistant to corrosion, and non-magnetic, making them ideal for use in orthopedic, neurosurgical, and cardiovascular procedures where precision and reliability are paramount.

U

Ultrasonic Scalpel:
An ultrasonic scalpel is a surgical instrument that uses ultrasonic vibrations to cut and coagulate tissue during surgical procedures. The scalpel converts electrical energy into ultrasonic vibrations, creating a precise cutting edge that simultaneously seals blood vessels, reducing bleeding and improving surgical

efficiency.

V

Vacuum Assisted Closure:
Vacuum-assisted closure (VAC) is a wound healing technique that uses negative pressure to promote healing and closure of complex wounds. A vacuum pump creates a controlled suction force, removing excess fluid and promoting the formation of granulation tissue, ultimately accelerating the healing process and reducing the risk of infection.

W

Wound Irrigation:
Wound irrigation is a technique used to clean and debride wounds during surgical procedures or wound care. Sterile saline solution or antiseptic solution is used to flush debris, bacteria, and dead tissue from the wound, reducing the risk of infection and promoting proper healing of the surgical site.