

National Curriculum of Pakistan
2022-23

TECHNICAL EDUCATION

MEDICAL TECHNOLOGY

Operation Theater Techniques

Grade 11-12



NATIONAL CURRICULUM COUNCIL SECRETARIAT
MINISTRY OF FEDERAL EDUCATION AND
PROFESSIONAL TRAINING, ISLAMABAD
GOVERNMENT OF PAKISTAN

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

National Curriculum of Pakistan
2022-23

TECHNICAL EDUCATION MEDICAL TECHNOLOGY

Operation Theater Techniques
Grade 11-12



NATIONAL CURRICULUM COUNCIL SECRETARIAT
MINISTRY OF FEDERAL EDUCATION AND
PROFESSIONAL TRAINING, ISLAMABAD
GOVERNMENT OF PAKISTAN



It is with great pride that we, at the National Curriculum Council Secretariat, present the first core curriculum in Pakistan's 75-year history. Consistent with the right to education guaranteed by Article 25-A of our Constitution, the National Curriculum of Pakistan (2022-23) aspires to equip every child with the necessary tools required to thrive in and adapt to an ever-evolving globalized world.

The National Curriculum is in line with international benchmarks, yet sensitive to the economic, religious, and social needs of young scholars across Pakistan. As such, the National Curriculum aims to shift classroom instruction from rote learning to concept-based learning.

Concept-based learning permeates all aspects of the National Curriculum, aligning textbooks, teaching, classroom practice, and assessments to ensure compliance with contemplated student learning outcomes. Drawing on a rich tapestry of critical thinking exercises, students will acquire the confidence to embark on a journey of lifelong learning. They will further be able to acknowledge their weaknesses and develop an eagerness to build upon their strengths.

The National Curriculum was developed through a nationwide consultative process involving a wide range of stakeholders, including curriculum experts from the public, private, and non-governmental sectors. Representatives from provincial education departments, textbook boards, assessment departments, teacher training departments, *deeni madaris*, public and private publishers, private schools, and private school associations all contributed their expertise to ensure that the National Curriculum could meet the needs of all Pakistani students.

The experiences and collective wisdom of these diverse stakeholders enrich the National Curriculum, fostering the core, nation-building values of inclusion, harmony, and peace, making the National Curriculum truly representative of our nation's educational aspirations and diversity.

I take this opportunity to thank all stakeholders, including students, teachers, and parents who contributed to developing the National Curriculum of Pakistan (2022-23)

Dr. Mariam Chughtai

Director

National Curriculum Council Secretariat

Ministry of Federal Education and Professional Training

Medical Technology
Operation Theater Techniques

Grade 11

Progression Grid

Domain A: Fundamentals of Operation Theater Techniques

Standard: Students will emerge as skilled Surgical Technologists embodying professionalism, accountability, and effective communication, while adeptly navigating ethical and legal considerations. They will demonstrate expertise in preoperative patient care, aseptic techniques, and surgical procedures, ensuring comprehensive readiness for the operating room environment.

Grade 11
Benchmark I: Practice standard operation theater techniques.
Student's Learning Outcome (SLOs)
Students will be able to [SLO:OTT-11-A-01]: Describe the characteristics of the professional surgical technologist. [SLO:OTT-11-A-02]:

Describe responsible and accountable behavior within the role and competencies of the surgical technologist.

[SLO:OTT-11-A-03]:

Apply principles and components of communication and teamwork in the surgical setting.

[SLO:OTT-11-A-04]:

Analyze the concept and code of conduct of ethics and medical law related to surgical technologist.

[SLO:OTT-11-A-05]:

Define and compare the roles of team members and health care facility departments related to direct and indirect patient care in surgical services.

[SLO:OTT-11-A-06]:

Describe the physical environmental systems and controls of the operation theater including temperature, humidity, ventilation, potential hazards.

[SLO:OTT-11-A-07]:

Apply principles of donning surgical attire.

[SLO:OTT-11-A-08]:

Explain the identification process of a patient admitted for a surgical procedure.

[SLO:OTT-11-A-09]:

Describe the steps for preoperative physical preparation of the patient prior surgical procedure.

[SLO:OTT-11-A-10]:

List items on the preoperative patient checklist.

[SLO:OTT-11-A-11]:

Describe the principles and different methods of patient transportation.

[SLO:OTT-11-A-12]:

Review the patient chart for diagnostic tests, interventions, all relevant documentations and laboratory reports before surgery.

[SLO:OTT-11-A-13]:

Define the concept and purpose of obtaining informed surgical consent.

[SLO:OTT-11-A-14]:

Exercise the principles, equipment and methods of surgical patient transfer.

[SLO:OTT-11-A-15]:

Identify and describe the sections and functions of OR Table.

[SSLO:OTT-11-A-16]:

Identify and describe various surgical positions of patients.

[SLO:OTT-11-A-17]:

List the basic considerations, indications, and supplies to perform the urinary catheterization and urine output.

[SLO:OTT-11-A-18]:

Describe different types and its steps for skin preparations.

[SLO:OTT-11-A-19]:

Demonstrate the sterile technique.

[SLO:OTT-11-A-20]:

Apply terms related to asepsis and sources of contamination.

[SLO:OTT-11-A-21]:

Demonstrate the steps of different types of hand wash.

[SLO:OTT-11-A-22]:

Define the basic concept of the surgical scrub, gowning and gloving.

[SLO:OTT-11-A-23]:

Demonstrate the purpose and procedure for counting instruments, sponges, sharps, and other items on the surgical field.

[SLO:OTT-11-A-24]:

Describe various types of draping materials, aseptic principles of draping the patient, equipment and furniture.

Domain B: Operation Theater Instrumentation

Standard: Students will have a comprehensive understanding of surgical equipment, ranging from their functions, assembly, and care to the application and classification of instruments. They will be able to explain the intricate relationships between instrument types and their usage, and expertly describe and classify surgical instruments specific to various surgical procedures, spanning general surgery, Obstetric and gynecology, genitourinary, orthopedic, otorhinolaryngology, oral and maxillofacial, plastic and reconstructive, ophthalmic, cardiothoracic, peripheral vascular, and neurosurgery.

Grade 11	Grade 12
Benchmark I: Students will be able to identify and use operation theater instruments.	

<p>Students will be able to</p> <p>[SLO:OTT-11-B-01]: Describe the functions, assembly, use and care of various equipment used in the operation theater.</p> <p>[SLO:OTT-11-B-02]: Describe the application of surgical equipment</p> <p>[SLO:OTT-11-B-03]: Classify names, parts, materials, finishes, and uses of basic surgical instrumentation.</p> <p>[SLO:OTT-11-B-04]: Explain the relationship between instrument types and usage.</p> <p>[SLO:OTT-11-B-05]: Classify the surgical instruments related to specific surgical procedures includes, general surgery, Obstetric and gynecology, genitourinary, orthopedic, otorhinolaryngology, oral and maxillofacial, plastic and reconstructive, ophthalmic, cardiothoracic, peripheral vascular, and neurosurgery.</p>	

Domain C: Clinical Microbiology

Standard: Students will identify and relate the classification, structure, characteristic, reproduction, route of transmission, diseases, prevention and its control of bacteria, virus, protozoa, and fungi and its infectious process related to operation theater. They will also be able to describe the various immune responses in the human body against infections.

Grade 11	Grade 12
<p>Benchmark I: Relate microorganisms and infectious processes in operation theater.</p>	
<p>Students will be able to</p> <p>[SLO:OTT-11-C-01]: Identify the name and function of various parts of the compound microscope.</p> <p>[SLO:OTT-11-C-02]: Classify the microorganisms and its relationship to the host.</p> <p>[SLO:OTT-11-C-03]: Describe the introduction of bacteria, viruses, fungi and viruses and their classification, structure, characteristic, reproduction, route of transmission, diseases, prevention and its control related to operation theater.</p> <p>Define the introduction and use chemotherapeutic agents in OT.</p>	<p>-----</p>

[SLO:OTT-11-C-04]:

Define the introduction, types and role of immunity and immunology.

[SLO:OTT-11-C-05]:

Define the infectious process, nature of infectious diseases Control of infectious diseases.

Practical:

Students will be able to

[SLO:OTT-11-C-06]:

Apply the methods of sterilization and disinfection in OT.

[SLO:OTT-11-C-07]:

Use chemotherapeutic agents in OT.

[SLO:OTT-11-C-08]:

Apply methods of environmental cleanliness in O.T.

[SLO:OTT-11-C-09]:

Interpret how to keep instruments, equipment and other things bacteria free.

Domain D: Sterilization and Disinfections

Standard: Students will discuss the physical and chemical methods of sterilization and disinfection utilized in operation theater.

Grade 11	Grade 12
Benchmark I: Students will be able to demonstrate and practice different methods of sterilization and disinfection in operation theater.	—
<p>Students will be able to</p> <p>[SLO:OTT-11-D-01]: Define terms related to the terminal disinfection and sterilization.</p> <p>[SLO:OTT-11-D-02]: Identify the methods of disinfection and sterilization.</p> <p>[SLO:OTT-11-D-03]: Explain the concept and materials used for creating microbial barriers.</p> <p>[SLO:OTT-11-D-04]: Explain methods for sealing microbial barriers.</p> <p>[SLO:OTT-11-D-05]: Demonstrate the process for preparing items for sterilization.</p>	-----

[SLO:OTT-11-D-06]:

Identify the variables related to the sterilization process and the materials to be processed.

[SLO:OTT-11-D-07]:

Describe the different methods of sterilization and disinfections.

[SLO:OTT-11-D-08]:

Use the process monitoring devices and methods.

[SLO:OTT-11-D-09]:

Identify the systems used for sterile storage and supplies.

[SLO:OTT-11-D-10]:

Describe the shelf life and event related to sterility.

[SLO:OTT-11-D-11]:

Demonstrate proper and improper technique in storing, handling and distributing sterile supplies.

[SLO:OTT-11-D-12]:

Describe steps towards decontamination of the OR environment.

[SLO:OTT-11-D-13]:

List the factors and variables of disinfecting agents related to the OR environment.

Operation Theater Techniques

Progression Grid 12

Domain E: Operation Theater Techniques

Standard: Students will demonstrate the intraoperative, post-operative and perioperative care and preparation of patient and operation theater.

Grade 11	Grade 12
Benchmark I:	Benchmark I: Students will be able to practice standard operation theater techniques related to intraoperative, post-operative and perioperative care and preparation of patient and operation theater.
-----	Students will be able to [SLO:OTT-12-E-01]: Describe the procedure of obtaining specimens validating with surgeons, labeling and transfer appropriate departments. [SLO:OTT-12-E-02]:

Define the various types of abdominal incisions.

[SLO:OTT-12-E-03]:

Demonstrate the principle, methods, and techniques of hemostasis during surgical procedure.

[SLO:OTT-12-E-04]:

Apply the criteria used to select exposure devices and tissue exposure.

[SLO:OTT-12-E-05]:

Prepare various types of catheters and drainage devices for intraoperative use .

[SLO:OTT-12-E-06]:

Discuss the basic principle, materials and procedure of wound closure.

[SLO:OTT-12-E-07]:

Describe the importance, common types and techniques of surgical dressing.

[SLO:OTT-12-E-08]:

Demonstrate the basic principles, types and classification of wound and wound care.

[SLO:OTT-12-E-09]:

Define the tissue replacement materials.

[SLO:OTT-12-E-10]:

Describe the emergency procedures performed in OR setting.

[SLO:OTT-12-E-11]:

Demonstrate the necessary equipment in the postanesthesia care unit and its immediate postoperative care.

[SLO:OTT-12-E-12]:

Select instruments, supplies and equipment needed for a surgical procedure.

[SLO:OTT-12-E-13]:

Describe function of the physical components of the operating room.

[SLO:OTT-12-E-14]:

Demonstrate the arrangement, care, handling and assembly of operating room furniture and equipment.

[SLO:OTT-12-E-15]:

Describe the use of instruments and supplies.

[SLO:OTT-12-E-16]:

Demonstrate techniques for preparing the sterile field.

[SLO:OTT-12-E-17]:

Explain the procedure for draping furniture and equipment.

[SLO:OTT-12-E-18]:

Describe placing and securing supplies and equipment for use on the sterile field.

[SLO:OTT-12-E-19]:

Explain methods for monitoring the sterile field.

[SLO:OTT-12-E-20]:

Apply the principles of asepsis to the practice of sterile technique.

[SLO:OTT-12-E-21]:

Assess the needs of the surgical team.

[SLO:OTT-12-E-22]:

Integrate variations of case management according to the surgical procedure.

[SLO:OTT-12-E-23]:

Demonstrate postoperative case management duties in an organized manner.

[SLO:OTT-12-E-24]:

Apply standard precautions to the performance of perioperative case management activities.

Domain F: Introduction of Pharmacology

Standard: Students will describe the fundamental principles of the clinical use of drugs, and thorough knowledge of the systems of measurement and conversion and application of skills to perform dosage calculations. Demonstrate knowledge and skill in measuring, mixing and passing onto a sterile field any medications requested by a surgeon during a procedure. Have basic knowledge of common drugs used before, during and after surgery.

Grade 11	Grade 12
	<p>Benchmark I: Apply basic principles of administration of drugs and dosage forms.</p> <p>Benchmark II: Demonstrate basic principles of pharmacokinetics and pharmacodynamics.</p>
	<p>Students will be able to</p> <p>[SLO:OTT-12-F-01]: Describe the fundamental principles of the clinical use of drugs.</p> <p>[SLO:OTT-12-F-02]: Apply basic mathematical calculations, dosage calculations and mixing medications procedures.</p> <p>[SLO:OTT-12-F-03]:</p>

Identify the general terminologies, types of medication actions and its effects of pharmacology.

[SLO:OTT-12-F-04]:

Identify the nomenclature, classifications, sources, different forms, and route of administration of pharmacological drugs.

[SLO:OTT-12-F-05]:

Demonstrate the drug and solutions identification, preparation, care and handling.

[SLO:OTT-12-F-06]:

Classify the pharmacological drugs used in surgery includes analgesics, antipyretic agents, anticoagulants and fibrinolytics, anticonvulsants, antiemetics, antihistamines, blood replacement interventions, coagulants, hemostatics, contrast media, diuretics, dyes, emergency drugs, hormones, inhalation, irrigation solutions, IV fluids, narcotics, sedative-hypnotic agents, staining agents, tranquilizers.

[SLO:OTT-12-F-07]:

Classify the pharmacological drugs used in surgery includes anti-microbial drugs, antineoplastic chemotherapy, autonomic agents, cardiac drugs, central nervous system stimulants, gastric drugs, obstetric agents, ophthalmic drugs.

[SLO:OTT-12-F-08]:

	Discuss the alternative medications including herbal medications and nutritional supplements.
--	---

Domain G: Principles of Anesthesia Techniques

Standard: Students will demonstrate and apply the methods, agents, and techniques of anesthesia administration and preparation of the surgical patient. They will also demonstrate the anesthesia monitoring devices with patient hemostasis, anesthesia complications and interventions.

Grade 11	Grade 12
	<p>Benchmark I: Students describe the methods of general anesthesia; including general and regional anesthesia.</p> <p>Benchmark II: Discuss the surgical technologist's possible tasks during a cardiopulmonary arrest in surgery.</p>

Students will be able to:

[SLO:OTT-12-G-01]:

Define anesthesia and assess factors to determine anesthesia choice.

[SLO:OTT-12-G-02]:

Classify different types of anesthesia procedures and choices of anesthesia administrations (general, spinal, regional and local).

[SLO:OTT-12-G-03]:

Identify the surgical team roles during anesthesia administration.

[SLO:OTT-12-G-04]:

Demonstrate anesthesia machine parts and its functions.

[SLO:OTT-12-G-05]:

Classify and use of the different anesthetic agents.

[SLO:OTT-12-G-06]:

Explain the general anesthesia procedure including patient position and patient monitoring devices and patient care devices.

[SLO:OTT-12-G-07]:

	<p>Describe different methods for delivering inhalation general anesthesia, phases and stages of general anesthesia.</p> <p>[SLO:OTT-12-G-08]:</p> <p>Describe delivery methods and local / topical agents of local anesthesia.</p> <p>[SLO:OTT-12-G-09]:</p> <p>Define the alternative anesthesia methods include cryoanesthesia and acupuncture.</p> <p>[SLO:OTT-12-G-10]:</p> <p>Predict the complications of anesthesia and its management.</p>
--	---

Domain 8: Surgical Procedures

Standard: Students will be able to identify and demonstrate the relevant anatomical location, common surgical incisions, methods for patient preparation, equipment's, instruments and supplies needed for the surgical procedure, steps of surgical procedures and also maintain aseptic technique during the surgical procedure.

Grade 11	Grade 12
Benchmark I:	Benchmark I: Explain procedures in light of their definition, goal of the procedure, relevant anatomy and pathology, surgical incision, instruments, equipment and supplies needed for surgical procedure steps

	including skin preparation and draping, steps of surgical procedure, aseptic techniques and patient care.
	<p>Students will be able to</p> <p>[SLO:OTT-12-H-01]: Describe steps towards assisting various types of general surgeries includes neck procedures, breast procedures, abdominal incision, biliary tract procedures, liver procedures, splenic procedures, pancreatic procedures, esophageal procedures, gastric procedures, intestinal procedures, colorectal and anorectal procedures, hernia, amputation of extremities.</p> <p>[SLO:OTT-12-H-02]: Describe steps towards assisting in the gynecologic and obstetric surgeries including cervical procedures, Uterine, ovarian, fallopian tubes, external genitalia, vaginal, pelvic.</p> <p>[SLO:OTT-12-H-03]: Describe various genitourinary surgical procedures including kidney, ureter, bladder, prostate, penile, testicular.</p> <p>[SLO:OTT-12-H-04]:</p>

Describe various otorhinolaryngology surgeries related to ear, nose, oral cavity and throat.

[SLO:OTT-12-H-05]:

Describes its various orthopedic surgical procedures of shoulder, radius, hip, femur, knee, ankle and foot

[SLO:OTT-12-H-06]:

Describe various oral and maxillofacial surgeries including maxillary and mandibular fractures, cleft repair, odontectomy, maxillary fractures, frontal fractures.

[SLO:OTT-12-H-07]:

Describe in plastic and reconstructive procedures of head and face, breast, abdomen, Superficial lesion/neoplasm, skin grafts, scar revision, hand procedures, and congenital defects correction.

[SLO:OTT-12-H-08]:

Assist various ophthalmic surgical procedures.

[SLO:OTT-12-H-09]:

Illustrate steps for various adult and pediatric cardiothoracic surgical procedures.

[SLO:OTT-12-H-10]:

Illustrate steps for various peripheral vascular surgeries include angioplasty, angiосcopy, AV Shunts and bypass, venous access device, vein ligation and stripping vena cava device, abdominal aortic aneurysms with graft insertion.

[SLO:OTT-12-H-11]:

Illustrate steps in various neurosurgeries.

[SLO:OTT-12-H-12]:

Describe the various types of transplant, tissue transplantation, organ transplantation, microvascular reimplantation procedures.

[SLO:OTT-12-H-13]:

List the various treatments and prognosis of cancer, operative resection, radio therapy, chemotherapy, immunotherapy, surgical procedures.



NATIONAL CURRICULUM COUNCIL SECRETARIAT
MINISTRY OF FEDERAL EDUCATION AND
PROFESSIONAL TRAINING, ISLAMABAD
GOVERNMENT OF PAKISTAN