



SEMESTER – IV

PAPER CODE	SUBJECT NAME	THEORY HOURS	PRACTICAL HOURS	THEORY MARKS	PRACTICAL MARKS
DOTT401	HAND HYGIENE & PREVENTION OF CROSS INFECTION	45 Min	1 Hrs.	50	50
DOTT402	ASSISTING IN MAJOR & MINOR SURGERY	45 Min	1 Hrs.	50	50
DOTT403	ANAESTHESIA TECHNIQUES & DRUGS	45 Min	1 Hrs.	50	50
DOTT04	OBSTETRICS & GYNECOLOGY	45 Min	1 Hrs.	50	50

HAND HYGIENE & PREVENTION OF CROSS INFECTION

Theory

1. Hand Hygiene Techniques

- **Demonstration of WHO's 7-step handwashing technique** using soap and water
- **Demonstration of hand rub technique** using alcohol-based hand sanitizer
- **Indications for hand hygiene:**
 - Before and after patient contact
 - After contact with body fluids
 - Before aseptic procedures
 - After removing gloves

2. Surgical Hand Scrubbing

- Step-by-step demonstration of surgical scrub using antiseptic solution
- Use of scrub brush or sponge
- Timing (5–10 mins) and correct sequence
- Drying hands with sterile towel
- Proper gowning and gloving after surgical scrub

3. Use of Personal Protective Equipment (PPE)

- Donning and doffing of:
 - Sterile gloves
 - Gown
 - Mask
 - Cap
 - Eye shield or face shield



- Safe disposal of used PPE
- Avoiding contamination while removing PPE

4. Aseptic Techniques

- Creating and maintaining a sterile field
- Handling sterile instruments and materials
- Avoiding breaches in sterility during procedures
- Identifying contamination risks in the OT

5. Cleaning & Disinfection of OT Surfaces

- Cleaning protocols for:
 - OT table
 - Anesthesia trolley
 - Floor and walls
- Using disinfectants like:
 - Sodium hypochlorite
 - Glutaraldehyde
 - Isopropyl alcohol
- Cleaning frequency: pre-op, intra-op, post-op

6. Management of Spillages

- Cleaning of blood and body fluid spills
- Proper dilution and use of disinfectants
- Use of PPE while managing spills
- Waste disposal of contaminated mops, gauze, etc.

7. Biomedical Waste Segregation

- Practical identification and use of color-coded bins:
 - Yellow, Red, Blue, Black
- Disposal of:
 - Soiled dressings
 - Sharps
 - Plastic waste
 - Human tissue
- Needle stick injury protocol (basic steps and reporting)

8. OT Room Entry & Exit Protocol

- Hand hygiene before entering
- Changing into OT attire
- Shoe covers and caps



- Entry/exit flow to minimize contamination
- Entry restrictions (traffic control)

9. Monitoring and Reporting Cross-Infection

- Observation of possible infection sources
- Reporting infection signs in patients (e.g., wound discharge)
- Understanding isolation precautions
- Supporting sterile procedures under supervision

10. Environmental Hygiene

- Ventilation awareness (HEPA filters, laminar flow)
- Cleaning of reusable equipment (lenses, scopes)
- Routine surface culture sampling (if applicable in clinical setting)

Practical

➤ Basic Hand Hygiene Practices

- Practical demonstration of:
 - WHO's **7 steps of handwashing** with soap and water
 - Use of **alcohol-based hand rub**
- Timing and duration for each method
- Indications:
 - Before & after patient contact
 - After glove removal
 - Before sterile procedures
 - After exposure to bodily fluids

➤ Surgical Hand Scrub Technique

- Step-by-step practice of surgical scrub:
 - Use of antiseptic (e.g., chlorhexidine, povidone-iodine)
 - Duration (minimum 5 minutes)
 - Cleaning under nails and arms up to elbows
 - Use of sterile towel for drying
- Gowning and gloving after scrub

➤ Use of Personal Protective Equipment (PPE)

- Donning and doffing:
 - Surgical gloves (sterile & non-sterile)
 - Gowns, masks, caps, shoe covers
 - Face shields or goggles
- Sequence of PPE removal to prevent contamination
- Hands-on practice under supervision



➤ **Aseptic Techniques**

- Maintenance of a **sterile field** during procedures
- Handling of **sterile instruments**
- Prevention of contamination (do's & don'ts)
- Identification of breaks in sterility and corrective actions

➤ **Cleaning & Disinfection of OT Areas**

- Cleaning protocols for:
 - OT tables, trolleys, monitors
 - Walls, doors, floors
- Disinfectants: sodium hypochlorite, isopropyl alcohol, glutaraldehyde
- Surface contact time and safe handling of chemicals



➤ **Biomedical Waste Segregation**

- Practical training in:
 - **Color-coded bin system**
 - Disposal of contaminated items (gauze, gloves, sharps)
- Labelling and sealing waste containers
- Sharp injury management basics

➤ **Cross-Infection Risk Management**

- Observation of infection control breaches
- Role-play in identifying and reporting:
 - Infected wounds
 - Discharges
 - Fever spikes in post-op patients
- Isolation precautions (standard, contact, droplet, airborne)

➤ **Decontamination of Reusable Instruments**

- Cleaning using enzymatic agents
- Rinsing, drying, and preparing instruments for sterilization
- Checking for visible contamination and tagging

➤ **Environmental Control in OT**

- Routine air quality monitoring (if applicable)
- Use of **HEPA filters, laminar airflow** (observational demo)
- Control of OT foot traffic

➤ **Documentation & Reporting**

- Recording infection control checklists
- Maintaining hand hygiene compliance logs
- Reporting incidents (needle stick injuries, spills)

ASSISTING IN MAJOR & MINOR SURGERY

Theory

1. Preparation Before Surgery

- Verification of:
 - **Patient identity and consent**
 - **Surgical checklist** (WHO standard)
- Arranging:
 - **Surgical instruments & sets** as per procedure



- **Sterile drapes, gowns, gloves, suction, cautery**
- OT preparation: lighting, suction, anesthesia machine check

2. Sterile Gowning and Gloving

- Proper technique for:
 - Wearing sterile gown and gloves
 - Assisting the surgical team in gowning and gloving
 - Maintaining sterility throughout the procedure

3. Setting Up Sterile Field

- Opening and organizing:
 - Instrument sets
 - Drapes, gauze, sutures, catheters, and other materials
- Maintaining asepsis and identifying contamination

4. Scrub Nurse Role in Minor & Major Surgeries

- Passing instruments using correct technique (neutral zone, palm-to-palm)
- Anticipating surgeon needs during procedure
- Counting of sponges, needles, and instruments (before & after surgery)
- Managing sutures, cautery, suction, and hemostatic agents

5. Circulating Nurse Role

- Assisting with:
 - Patient positioning and safety
 - Skin prep and draping
 - Adjusting equipment (light, monitors)
- Handling non-sterile supplies
- Coordinating with anesthesia team

6. Handling Surgical Specimens

- Receiving specimens in sterile containers
- Labelling and documenting properly
- Transferring to pathology/lab safely

7. Assisting in Minor Procedures (e.g., incision & drainage, suturing, cyst removal)

- Setting up minor procedure trays
- Supporting wound care
- Application of dressing under aseptic precautions



8. Instrument Care During and After Surgery

- Immediate post-use decontamination
- Safe transfer of used instruments
- Preparation for cleaning, disinfection, or sterilization

9. Post-Operative Procedure

- Assisting in:
 - **Safe patient transfer** to recovery room
 - Monitoring patient vitals under guidance
 - Dressing application & documentation
- Cleaning and disinfection of OT
- Disposal of biomedical waste

10. Emergency Support

- Preparing crash cart
- Basic CPR & resuscitation support (under supervision)
- Assisting during complications like bleeding, hypotension, cardiac arrest

11. Documentation & Reporting

- Surgical count record
- Operation note assistance
- Recording and reporting of adverse events or instrument breakage

Practical

➤ Pre-Operative Preparation

- Patient verification (name, ID, consent)
- Surgical checklist verification (e.g., site, side, fasting status)
- Pre-op skin preparation and hair removal (if required)
- Assist in patient positioning and transport to OT
- Psychological preparation and communication (under supervision)

➤ Sterile Techniques & Surgical Setup

- Hand scrub procedure (as per WHO/AORN standards)
- Gowning and gloving (self and assisting surgeon)
- Arrangement of sterile field and instruments
- Draping patient while maintaining aseptic technique
- Final verification before incision



➤ **Instrument Handling & Passing**

- Identification of common surgical instruments
- Instrument passing techniques (palm-to-palm, neutral zone)
- Handling electrocautery, suction, and retractors
- Use of hemostatic tools and materials (sponges, clamps)

➤ **Scrub Nurse Duties**

- Counting sponges, needles, and instruments (pre- and post-procedure)
- Assisting surgeon during incision, retraction, suturing
- Monitoring sterile field and reporting breaks in sterility
- Keeping instruments clean and organized during surgery

➤ **Circulating Nurse Duties**

- Transport of sterile packs, additional items
- Adjusting OT lights, temperature, and equipment
- Preparing and labeling surgical specimens
- Communicating with external teams (lab, radiology)
- Documentation assistance

➤ **Minor Surgery Assistance**

- Tray setup for procedures like:
 - Incision and drainage
 - Suturing of minor wounds
 - Dressing change
 - Cyst/lipoma excision
- Local anesthesia support
- Aseptic dressing application

➤ **Post-Operative Duties**

- Sponge, needle, instrument count
- Wound dressing under supervision
- Removing soiled linens and cleaning OT table
- Decontaminating and sending instruments for sterilization
- Assisting in patient transfer to recovery room
- Recording procedure details in OT register

➤ **Emergency Management Support**

- Ready setup for emergency procedures (e.g., laparotomy, cesarean)
- Assisting during sudden complications (e.g., hemorrhage, shock)
- Familiarity with crash cart and resuscitation equipment



- Basic CPR assistance (under supervision)

➤ **Handling Surgical Specimens**

- Labeling and securing samples (e.g., tissue biopsy, fluid)
- Formalin fixation (if needed)
- Communication with pathology department

➤ **Waste Disposal & Infection Control**

- Segregation of waste (biohazard, sharps)
- Handling contaminated materials and linens
- Ensuring disinfection of OT post-surgery
- Compliance with infection control protocols

ANAESTHESIA TECHNIQUES & DRUGS

Theory

1. Introduction to Anaesthesia

- Definition and purpose of anaesthesia
- History and evolution of anaesthesia
- Role of OT technician in anaesthesia support
- Classification: local, regional, general anaesthesia

2. Anatomy & Physiology Related to Anaesthesia

- Basic nervous system (CNS and PNS) overview
- Respiratory system: airways, lungs
- Cardiovascular system: heart and blood vessels
- Importance of organ perfusion and oxygenation

3. Pre-Anaesthetic Preparation

- Pre-anaesthetic assessment and checklist
- Informed consent and fasting guidelines
- Pre-medication: sedatives, antiemetics, anticholinergics
- Role of the technician in preparation

4. Types & Techniques of Anaesthesia

A. Local Anaesthesia

- Surface, infiltration, field block
- Common local anaesthetic agents (e.g., lignocaine)



- Advantages, limitations, and complications

B. Regional Anaesthesia

- Nerve block (brachial plexus, femoral nerve)
- Spinal anaesthesia
- Epidural anaesthesia
- Indications, techniques, monitoring, and complications

C. General Anaesthesia

- Stages of GA
- Induction, maintenance, emergence
- Airway management: oral airway, laryngeal mask, endotracheal tube
- Inhalational vs. intravenous anaesthesia

5. Anaesthetic Equipment & Supplies

- Boyle's apparatus
- Laryngoscope, oxygen cylinder, flowmeter, vaporizer
- Face masks, airway adjuncts (OPA/NPA)
- Endotracheal tubes, suction machines
- Anaesthetic trolley preparation

6. Anaesthetic Drugs

A. Induction Agents

- Thiopentone sodium
- Propofol
- Ketamine

B. Inhalational Agents

- Nitrous oxide
- Halothane
- Sevoflurane, Isoflurane

C. Muscle Relaxants

- Depolarizing: Succinylcholine
- Non-depolarizing: Vecuronium, Atracurium

D. Analgesics & Sedatives

- Morphine, Fentanyl
- Midazolam, Diazepam



E. Emergency Drugs

- Atropine
- Adrenaline
- Dopamine, Ephedrine
- Antihistamines

7. Monitoring During Anaesthesia

- Monitoring pulse, BP, ECG, oxygen saturation
- Capnography and temperature monitoring
- Depth of anaesthesia
- Documentation

8. Post-Anaesthesia Recovery

- Reversal of anaesthesia
- Extubation techniques
- Monitoring in PACU (Post Anaesthesia Care Unit)
- Complications: nausea, airway obstruction, hypotension
- Role of OT technician in recovery care

9. Complications of Anaesthesia

- Hypoxia
- Hypotension
- Aspiration
- Malignant hyperthermia
- Anaphylaxis
- Emergency response protocols

10. Legal & Ethical Aspects

- Consent before anaesthesia
- Recording drug usage
- Reporting complications
- Medico-legal importance of anaesthetic records

Practical

➤ Pre-Anaesthetic Preparation

- Prepare pre-anaesthesia checklists (PAC)
- Assist in patient identification and consent verification
- Fasting status confirmation
- Skin sensitivity test for local anaesthetic (if advised)



- Pre-medication assistance (sedatives, antacids, anticholinergics)

➤ **Anaesthesia Equipment Setup**

- Assembling and checking Boyle's apparatus
- Checking oxygen cylinder, pressure gauge, flow meter
- Setup of vaporizer, oxygen and nitrous oxide flow systems
- Laryngoscope inspection and bulb test
- Suction machine testing and tubing setup

➤ **Airway Management Techniques**

- Correct use of:
 - Face masks
 - Oral and nasal airways (OPA/NPA)
 - Laryngeal mask airway (LMA)
 - Endotracheal intubation assistance
- Assisting in extubation and suctioning
- Positioning patient for airway access

➤ **Spinal & Epidural Anaesthesia Preparation**

- Sterile trolley setup for regional anaesthesia
- Preparing and handling spinal/epidural needles
- Positioning of patient for spinal/epidural
- Handling of local anaesthetic drugs under supervision
- Observing and recording vitals during the procedure

➤ **General Anaesthesia Assistance**

- Preparation of IV line and fluids
- Drawing and labeling of induction drugs (Thiopentone, Propofol, etc.)
- Monitoring vital signs during induction
- Supporting ventilation using Ambu bag or machine
- Documentation of induction and maintenance times

➤ **Anaesthesia Drug Handling**

- Identification and dosage labeling of:
 - Local anaesthetics (e.g., Lignocaine)
 - Induction agents (Propofol, Ketamine)
 - Muscle relaxants (Succinylcholine, Vecuronium)
 - Emergency drugs (Atropine, Adrenaline)
- Safe handling and discarding of used syringes/needles
- Maintaining drug record sheet



➤ **Monitoring During Anaesthesia**

- Placement and monitoring using:
 - Pulse oximeter
 - ECG leads
 - Non-invasive BP monitor
 - Capnograph (if available)
- Observing changes in vitals and reporting to anaesthetist
- Assisting in documentation of anaesthetic records

➤ **Emergency Situations Handling**

- Ready setup of crash cart with:
 - Defibrillator
 - Emergency drugs
 - Airway supplies
- Assist in emergency airway management
- Assist during CPR and post-anesthesia resuscitation
- Report and document adverse reactions or complications

➤ **Post-Anaesthesia Care Unit (PACU) Support**

- Monitoring patients post-extubation
- Assessing airway patency, SpO₂, BP, consciousness level
- Documentation in recovery chart
- Supporting patient positioning and comfort measures
- Assisting in discharge from PACU as per protocols

➤ **Aseptic Techniques & Waste Management**

- Maintain sterility while assisting regional techniques
- Safe disposal of anaesthetic waste and sharps
- Cleaning and disinfection of equipment
- Re-stocking anaesthesia trolley

OBSTETRICS & GYNECOLOGY

Theory

1. Introduction to Obstetrics & Gynaecology

- Definition and scope of obstetrics & gynaecology
- Importance in operation theatre practices
- Role of OT technician in OBG procedures



2. Female Reproductive Anatomy & Physiology

- External & internal genital organs
- Structure and function of uterus, ovaries, fallopian tubes
- Hormonal regulation: estrogen, progesterone
- Menstrual cycle: phases and hormonal control

3. Pregnancy & Childbirth

- Signs and symptoms of pregnancy
- Antenatal care and monitoring
- Stages of labour
- Normal delivery process
- Role of OT technician in labor ward and cesarean section

4. Common Obstetric Surgical Procedures

- Cesarean section (C-section)
- Dilatation & Curettage (D&C)
- Medical Termination of Pregnancy (MTP)
- Ectopic pregnancy management
- Episiotomy and repair

5. Gynaecological Conditions & Surgeries

- Fibroids, ovarian cysts, endometriosis
- Hysterectomy: abdominal and vaginal
- Tubectomy & laparoscopic sterilization
- Prolapse uterus
- Diagnostic laparoscopy and hysteroscopy

6. Pre-Operative & Post-Operative Care

- Pre-operative preparation of OBG patients
- Positioning during surgeries (lithotomy, supine)
- Monitoring vitals, IV lines, and catheters
- Post-op recovery and patient support
- Infection control in obstetrics theatre

7. Anaesthesia in OBG Surgeries

- Commonly used anaesthesia: spinal, general
- Pre-anaesthetic assessment
- Role of OT technician in assisting anaesthesia



8. Instruments & Sutures in OBG

- Instruments for C-section, D&C, hysterectomy, etc.
- Suturing materials used in obstetric and gynaec surgeries
- Sterilization techniques of instruments

9. Emergencies in OBG

- Postpartum hemorrhage (PPH)
- Eclampsia and pre-eclampsia
- Uterine rupture
- Retained placenta
- Emergency C-section preparation

10. Legal & Ethical Aspects

- Legal issues in MTP
- Consent and documentation in obstetric surgeries
- Respect for privacy and confidentiality
- Female patient handling protocols

Practical

➤ Pre-Operative Preparation

- Preparation of obstetric patient for surgery (e.g., C-section)
- Shaving and cleaning of the perineal area
- Pre-operative medication administration (as per prescription)
- Verification of patient identity, consent, and fasting status
- Antiseptic painting and draping of surgical site

➤ Assisting in Obstetric Procedures

- Setting up OT for:
 - **Normal Vaginal Delivery (NVD)**
 - **Cesarean Section (C-section)**
 - **Episiotomy & Repair**
- Handling sterile instruments during delivery
- Assisting during umbilical cord clamping and placenta delivery
- Monitoring vitals and assisting anaesthetist during C-section

➤ Assisting in Gynaecological Procedures

- Preparing surgical trolley for:
 - **Dilatation & Curettage (D&C)**
 - **Medical Termination of Pregnancy (MTP)**



- **Abdominal & Vaginal Hysterectomy**
- **Laparoscopic sterilization**
- Assisting in patient positioning (e.g., lithotomy)
- Use of retractor, uterine sound, dilators, curettes
- Passing instruments under supervision to the surgeon

➤ **Instrument Handling & Identification**

- Identification and handling of:
 - Uterine sound, Sims speculum, Cusco's speculum
 - Tenaculum, vulsellum, sponge holding forceps
 - Doyen's retractor, bladder retractor
 - Uterine curette, dilators, artery forceps
- Cleaning, drying, and packing for sterilization

➤ **Sterilization & Infection Control**

- Disinfection and autoclaving of OBG instruments
- Use of appropriate PPE during delivery and surgery
- Safe disposal of biological waste including placenta
- Preparation of delivery packs and sterile linen
- Hand hygiene and perineal hygiene practices

➤ **Assisting in Anaesthesia for OBG Cases**

- Preparing spinal tray and positioning patient
- Monitoring vitals during spinal/general anaesthesia
- Ensuring suction machine, Ambu bag, and oxygen setup
- Assisting during intubation or regional block

➤ **Post-Operative Care Assistance**

- Transfer and monitoring of mother post-surgery
- Recording pulse, BP, bleeding, and consciousness level
- Ensuring uterine contraction and checking lochia
- Assisting in newborn care (cleaning, Apgar scoring)
- Helping in breastfeeding initiation if required

➤ **Emergency Preparedness**

- Ready OT for emergency C-section or PPH management
- Keeping blood transfusion setup ready
- Crash cart & emergency drug tray check
- Assisting during manual removal of placenta or uterine packing



➤ **Documentation & Reporting**

- Filling OT notes and surgical checklist
- Documentation of instruments used and surgical counts
- Maintaining delivery and surgical registers

➤ **Communication & Ethical Practice**

- Assisting with patient modesty and comfort
- Effective communication with surgical team
- Maintaining confidentiality during sensitive procedures
- Emotional support to anxious obstetric patients

