Course Information Form (CIF)

Course Code: VTT 117

Course Title: Surgical Technology I

Department: Allied Health
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 01.8301
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 2-3-3
Credit Hour Distribution:

Lecture: 2	Lab: 2	Clinical: 1	**Total: 3**

General Course Information

Catalog Description

Introduction to anesthesia for dogs and cats: patient monitoring, anesthetic machine use, intubation, anesthetic drugs and pain management. Surgical support skills: surgery pack preparation, instruments, autoclaving, aseptic techniques, surgical preps, surgical procedures, suture materials, and post-op care.

General Course Objectives

Practice employing methods and procedures used in anesthetic machine use, endotracheal intubation, patient monitoring, and preparation for sterile surgery, including surgical pack preparation, cleaning of surgical instruments, autoclaving, aseptic techniques, sterile surgical preps, and suture materials.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 099	Placement out of CCS 099	Placement out of MAT 072

Prerequisites

Credit in VTT 110, VTT 113, VTT 114, VTT 116, VTT 119, and BIO 111
Admission into the Veterinary Technology program

Methods of Evaluation

2 objective lecture examinations, 3-5 lecture quizzes, 2 practical laboratory examinations, 3-5 laboratory quizzes.

Instructional Materials and Additional Supplies

Required Textbooks

- VTT 117 Course Manual - Required
- Anesthesia and Analgesia for Veterinary Technicians, Fifth Edition. John A. Thomas and Phillip Lerche. ISBN #978-0-323-00504-8
- Small Animal Surgical Nursing: Skills and Concepts, Fourth Edition. Marianne Tear. ISBN # 9780323312271

Recommended Textbooks

- Veterinary Instruments and Equipment: A Pocket Guide, 2nd Edition. Teresa F. Sonsthagen, BS, LVT. ISBN #978-0-323-07203-8

Scrubs

Watch with second hand

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Sterilization Methods, Asepsis	1. Define the following terms: asepsis, clean, contaminated, antiseptic, disinfectant, sterile, bacteriostatic, bactericidal, and surgical conscience. 2. Give examples of two common surgical antiseptics and two common disinfectants, and identify their characteristics. 3. Give examples of the factors to be considered when sterilizing an item. 4. List, describe, and discuss the advantages and disadvantages of the different methods of sterilization. 5. Discuss the advantages and disadvantages of the different methods of sterilization. 6. Demonstrate how to use and maintain an autoclave.	0.5	1	0
Care and Handling of Instruments	1. Discuss the importance of proper care and maintenance of instruments. 2. Identify the parts of an instrument. 3. Explain the difference of carbon steel vs stainless steel. 4. Describe tungsten carbide inserts and explain their advantage. 5. List and explain the steps in instrument care. 6. Identify the areas to inspect for damage on an instrument. 7. Identify the factors leading to corrosion and rust.	0.5	1	0
Surgical Instrument Identification	1. Identify and name all instruments listed in the VTT 117 lab manual and textbook. 2. Explain the use of these common instruments.	1	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Introduction to Anesthesia	1. Describe the role of the CVT during anesthesia. 2. Define and give examples of the following terms: general anesthesia, regional anesthesia, local anesthesia, topical anesthesia, sedation, tranquilization, pre-medication, and anesthetic induction. 3. List the common general inhalant anesthetics used in veterinary medicine and compare the gas anesthesia pathway during induction vs recovery. 4. Describe the effects of anesthesia on the CNS, cardiovascular system, and pulmonary system. 5. Explain the physiologic effects during normal inhalation and exhalation. 6. Define atelectasis. 7. Describe diffusion and how this relates to anesthetic gas movement. 8. Define tidal volume, inspiratory reserve volume, expiratory reserve volume, residual volume, total lung capacity, and vital capacity. 9. Calculate the tidal volume for a dog and a cat when given the weight of the animal. 10. Define anatomical dead space, alveolar dead space, physiological dead space, and mechanical dead space. 11. Discuss factors affecting anesthesia including metabolism, size of animal, physical condition, illness, gender, and breed.	1	0	0
Anesthetic Machine	1. Identify and explain the function of each part of the anesthetic machine. 2. Define the terms circle system and rebreathing system. 3. Distinguish between a VOC and VIC. 4. Demonstrate the setup for anesthesia using the anesthetic supplies checklist. 5. List the seven steps to setting up an anesthetic machine. 6. List the steps/precautions to filling the vaporizer. 7. List three ways to determine the effectiveness of the soda lime granules. 8. Choose the proper breathing tubes (Y piece) for a given patient. 9. Calculate the rebreathing bag size for a given patient. 10. Calculate the oxygen flow for a rebreathing system for a given patient. 11. Set up and operate a rebreathing anesthetic system.	2	3	3
Patient Monitoring	1. Describe the role of the CVT with regard to patient monitoring. 2. Discuss how the patient parameters are used when monitoring anesthesia. Include heart rate and rhythm, respiratory rate and rhythm, pulse and blood pressure, capillary refill time, mucous membrane color, eye position, muscle tone, reflexes, temperature, and response to surgery. 3. Practice monitoring these parameters and identify normal and abnormal patient parameters while under anesthesia. Identify reasons for abnormal patient parameters while under anesthesia. 4. Describe the reflexes used when monitoring anesthesia and practice assessing these reflexes. 5. Explain the use of a pulse oximeter, capnometer, and blood pressure (Doppler, oscillometric, arterial catheter) monitor. 6. Explain setup, operation, care, maintenance, and troubleshooting of the monitoring devices. 7. List reasons for inaccurate pulse oximeter, capnometer, ECG, and blood pressure readings in a patient under anesthesia. 8. Demonstrate the use of the pulse oximeter, ECG, blood pressure monitor, and multi-parameter monitor (SurgiVet). 9. Discuss causes and effects of various physiologic changes that may occur during anesthesia based on monitoring. 10. List the Stages and Planes of anesthesia. 11. Describe the changes in patient parameters and reflexes with each Stage and Plane of anesthesia. 12. Describe patient responses to surgery based on their Stage and Plane of anesthesia. 13. Identify which Stage and Plane is used for light, medium, and deep anesthesia. 14. Perform complete monitoring of patient under anesthesia, assessing cardiovascular, respiratory, and neurological parameters.	2	1	3

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Inhalant Anesthetics	1. Compare inhalant anesthetics to injectable anesthetics, giving their advantages and disadvantages. 2. List the inhalation anesthetics agents presented in lecture, and describe their indications, modes of action, effects, adverse effects, and uses. 3. Define vapor pressure, partition coefficient, and minimum alveolar concentration (MAC). 4. Explain the ways in which the above properties affect the action and use of inhalant anesthetic agents. 5. Explain denitrogenation, second gas effect, diffusion hyperoxia, and diffusion hypoxia as related to nitrous oxide.	1	0	0
Anesthetic Drugs	1. Define a controlled substance and list the five controlled substance schedules. 2. List the information needed on a controlled substance log. 3. Identify the drug category for each anesthetic drug used in surgery lab. 4. Describe the use and side effects of each anesthetic drug used in surgery lab.	0.5	1	0
Drug Calculations	1. Memorize common conversions listed in the lab manual. 2. Calculate drug doses when given an animal's weight, dosage, and drug concentration. 3. Calculate solution/dilution problems, including heparin dilutions. 4. Recognize what constitutes a medication error.	0.25	1	0
Introduction to Fluid Therapy	1. Explain the function of body fluids. 2. List the general principles of fluid therapy. 3. Indicate the factors used in patient assessment prior to fluid therapy. 4. Explain the difference between crystalloid solutions and colloid solutions and give examples of crystalloid solutions and colloid solutions. 5. Calculate the IV surgical fluid rate using the Parkland College VT program fluid rate. 6. Recognize the two different types of fluid administration systems. 7. Choose the proper IV set/drip chamber based on animal size. 8. Demonstrate the proper method to hook up an IV set to a bag of fluids. 9. Demonstrate how to set the proper drip rate. 10. Describe the clinical signs seen when fluid therapy is under-administrated and over-administrated. 11. Calculate drip rate problems. 12. Predict the course of treatment used for hypotension during anesthesia.	0.25	1	0
Preparation of the Surgical Team and Preparation of the Surgical Suite	1. Explain precautions to maintaining sterility. 2. Describe how the surgery room should be cleaned and disinfected. 3. Describe how equipment should be cleaned and disinfected between patients. 4. Describe proper attire in the surgical preparation area and surgical suite. 5. Explain why a hand and arm scrub is important. 6. List four antiseptics used when performing a hand and arm scrub. 7. Memorize the block method of hand and arm scrub. 8. Discuss the advantages to using the Avagard® scrub. 9. Demonstrate the proper way to scrub using the block scrub. 10. Demonstrate the proper way to scrub using Avagard®. 11. Demonstrate the proper way to dry.	0.5	1	0
Pack Preparation	1. Explain the use of autoclave tape and sterilization indicator strips. 2. Give examples of reasons for sterilization failure. 3. Memorize length of sterility for materials wrapped in surgical drapes vs materials placed in heat-sealed plastic autoclave bags. 4. Memorize the time requirements needed to autoclave needles, syringes, glove packs, instrument packs, and gown and towel packs. 5. Demonstrate folding and wrapping a towel and gown pack. 6. Demonstrate packing and wrapping an instrument pack. 7. Demonstrate the proper use of indicator strips and tape in both the gown and towel pack as well as the instrument pack.	0.5	1	0
Gowning and Gloving	1. Distinguish between open gloving and closed gloving. 2. Demonstrate and follow the procedures for opening a glove pack and gown and towel pack properly. 3. Demonstrate and follow the procedures for open gloving. 4. Demonstrate and follow the procedures for closed gloving.	0.5	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Surgical Assisting	1. Identify the Veterinary Technician role in surgical assisting. 2. Describe what constitutes the sterile field. 3. Recognize and discuss the rules of maintaining a sterile field. 4. Demonstrate maintenance of asepsis and a sterile field. 5. Follow the procedures for opening an instrument pack. 6. Follow the procedures for opening sterile packs without contaminating their contents or sterile field. 7. Follow the procedures for opening suture. 8. Follow the procedures for opening individual instruments. 9. Demonstrate passing instruments. 10. Demonstrate safely applying and removing a scalpel blade to a handle. 11. Demonstrate sterile draping.	0.5	1	0
Record Keeping for Surgery	1. Identify the various forms used for recording keeping at Parkland College VT program including drug protocol sheets, procedure log, medical record, anesthesia record, surgical procedure summary, and anesthesia medication summary. Explain the use of each form. 2. Explain the medical records protocol for the Parkland College VT program. 3. Employ the use of the drug protocol sheet when calculating drug doses. 4. Define the SOAP record keeping system and identify what is listed under each category in the SOAP record keeping system (S, O, A, P). 5. List the advantages to a SOAP record keeping system. 6. Demonstrate accurate documentation in a medical record. 7. Document controlled substances properly and accurately.	1	2	0
Anesthetic Emergencies and CPR	1. Define the following terms: apnea, respiratory arrest, dyspnea, tachypnea, cyanosis, tachycardia, bradycardia, pulse deficit, and cardiac arrest. 2. List the most common reasons why anesthetic emergencies occur, including problems arising from human error, equipment failure, and the adverse effects of anesthetic agents. 3. Discuss the causes of anesthetic emergencies relating to human error. 4. Discuss the causes of anesthetic emergencies relating to equipment issues. 5. Give examples of why an animal will not stay anesthetized. 6. Give examples of why an animal is too deeply anesthetized. 7. Discuss the causes of apnea and effects of apnea. 8. Describe the appropriate response to common emergencies, including dyspnea, respiratory arrest, and cardiac arrest. 9. Identify the Emergency Cart in surgery lab. 10. Summarize the steps to performing CPR in a kennel/clinic type setting. 11. Demonstrate CPR on a canine CPR model.	2	1	0
Endotracheal Intubation	1. List the reasons to use an ET tube. 2. List the equipment necessary for ET intubation. 3. Identify the parts of an ET tube and explain their function. 4. Discuss the importance of choosing the proper size of ET tube. 5. Identify the proper sized ET tube for a patient and be able to choose two different sizes of ET tubes per patient. 6. Demonstrate how to properly check an ET tube prior to anesthesia. 7. Identify the arytenoids on a patient. 8. Demonstrate the proper procedure for passing an ET tube including all the steps. 9. List signs that the ET tube may be in the trachea. 10. Demonstrate ET intubation in dogs. 11. Demonstrate ET intubation in cats. 12. Demonstrate how to properly extubate a patient. 13. Demonstrate how to properly clean an ET tube. 14. Describe when a patient should be extubated.	1	1	3
Controlled Respiration	1. Explain the difference between assisted and controlled ventilation. 2. Describe the techniques of manual, mechanical, periodic, and intermittent mandatory ventilation and their application to anesthesia. 3. Explain when it is necessary to bag an animal and respond by bagging an animal when needed. 4. Explain and follow the steps for flushing the system.	1	0	1

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Surgical Preparation of Patient	1. List key information that should collected when obtaining a patient history. 2. Identify important pre-surgical physical examination findings related to small animals and large animals. 3. Identify the steps preparing for surgery once the patient has arrived at the clinic. 4. List the steps involved in a surgical prep for an animal. 5. Demonstrate how to operate, clean, and maintain a set of clippers. 6. Discuss and demonstrate the technique used for a surgical clip. 7. List the common skin antiseptics used in veterinary medicine. 8. Discuss and demonstrate surgical scrubbing of a small animal patient with respect to the scrubbing pattern, number of scrubs, time of scrubbing, and use of gauze sponges. 9. Demonstrate how to properly tie down a patient for an OHE. 10. Demonstrate how to properly adjust a surgical table.	1	0	2
Surgical Procedures	1. Describe the linea alba. 2. Explain why veterinarians prefer to make abdominal incisions on the linea alba. 3. Describe the landmarks for clipping the entire abdomen for surgery. 4. Define the following suffixes: -tome, -otomy, -ectomy, -ostomy. 5. Define surgical procedures based on the above prefixes. 6. For the following surgical procedures (Ovariohysterectomy, Cesarean Section, Mastectomy, Canine and Feline Castration, Exploratory Laparotomy, Gastrotomy, Enterotomy, Intestinal Anastomosis, Splenectomy, Anal Sac Ablation, Abscesses, Bite Wounds, Dental Abscess, Hernias, Declaw, Aural hematoma, Lateral Ear Resection, Ear Crop, Cystotomy, Perineal urethrostomy, Equine Castration, Caslicks Procedure, Colic, LDA, C-Section, General orthopedic surgery, and FHO), be able to: 1) Describe the procedure, 2) List indications for the procedure, 3) Describe any special considerations, 4) Describe the surgical prep giving the anatomical landmarks, 5) List any special instruments needed, and 6) Indicate the post-op instructions. 7. Define hernia, gastropexy, abomasalpexy, torsion, instussception, volvulus. 8. List the assessments used when describing fractures and recognize the different fracture types. 9. Define open vs closed fracture. 10. Define reducible vs non-reducible fracture. 11. Discuss and differentiate internal fixation vs external fixation. List special equipment needed for internal fixation orthopedic surgery. List special equipment needed for external fixation orthopedic surgery. 12. Identify the location of the incision needed to repair a fracture involving the following fractures: 1) Midshaft tibial fracture, 2) Midshaft femoral fracture, 3) Radial and Ulnar fracture, and 4) Humeral fracture. 13. Identify stockinette. 14. Describe and demonstrate the surgical preparation of a long bone fracture from the non-sterile assistant and sterile assistant.	4	0	0
Introduction to Pain Management	1. Discuss the relationship between the pain pathways in animals vs humans. 2. Discuss the role of the Certified Veterinary Technician in pain management. 3. Define acute pain, chronic pain, nociceptive pain, neuropathic pain, wind-up, allodynia, and central sensitization. 4. Give examples of the above types of pain. 5. Discuss acute pain vs chronic pain. 6. Discuss why wind-up pain must be avoided. 7. Give specific examples of signs of pain with regard to loss of normal behavior, expression of abnormal behaviors, reaction to touch, and physiologic parameters. 8. Discuss the importance of maintaining standardized records of pain assessment. 9. Explain how tissue trauma causes pain with regard to inflammation and cytokines. 10. Define per-operative approach and multi-modal approach to pain therapy. 11. List the major categories of medical analgesics. 12. Explain the synergistic affect. 13. Define local anesthesia and give specific examples of local anesthesia. 14. Give examples of non-pharmacological pain management. 15. Explain how you would communicate to clients the importance of pain management.	1	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Post-Operative Care	1. Define the post-operative period. 2. Discuss special considerations when monitoring recovery of brachycephalic breeds. 3. Discuss and demonstrate what to do if a patient vomits while intubated. 4. Explain considerations when returning a patient to a cage. 5. Explain special consideration of large animal recovery. 6. Discuss how to maintain body temperature during recovery of a small animal. 7. Explain parameters monitored during the recovery and post-op period. 8. List post-op circumstances/complications when the veterinarian should be notified. 9. Explain the process of discharging a patient including final examination, grooming, and pain control. 10. Discuss client communication and items discussed when discharging a patient. 11. List specific instructions when discharging for a routine OHE and castration with regard to exercise, feeding, medications, surgery site monitoring, signs of adverse reactions, and suture removal.	2	1	0
Workplace Safety	1. List potential side effects of prolonged exposure to gas anesthetic. 2. Describe ways to prevent overexposure to gas anesthetics. 3. Describe different scavenger systems and discuss the pros/cons of each.	0.25	0	0
Puppy and Kitten Anesthesia	1. Discuss the special considerations needed when anesthetizing puppies and kittens with regard to heart rate regulation, respiration, liver and kidney function, hypoglycemia, and thermoregulations. 2. Memorize critical parameters in puppies and kittens: respiratory rate, heart rate, and IPPV.	0.25	0	0
Suture Needles, Suture Materials, Suture Patterns	1. Name and discuss the four properties used to describe suture needles. Identify and classify a needle based on those four properties. 2. Describe the difference between cutting needles and reverse cutting needles. 3. Explain the difference between non-synthetic suture and synthetic suture. 4. Explain the difference between non-absorbable and absorbable suture. 5. Explain why chromic acid is used to treat catgut. 6. Explain the difference between untreated catgut, chromic catgut and extra chromic catgut. 7. Define braided absorbable suture. 8. Define monofilament absorbable suture. 9. Identify suture as absorbable/non-absorbable and synthetic/non-synthetic when given different types of suture. 10. Give examples and compare the type of synthetic absorbable, non-synthetic absorbable, synthetic non-absorbable, and synthetic absorbable suture. 11. Recognize the different suture material sizes. 12. Identify and compare the advantages and disadvantages of common suture patterns of simple interrupted, mattress (horizontal and vertical) sutures, simple continuous, Ford interlocking, tension, and purse string patterns. 13. Give the use of simple interrupted, mattress (horizontal and vertical) sutures, simple continuous, Ford interlocking, tension, and purse string patterns.	1	2	0
Suturing	1. Demonstrate the proper way to place a single interrupted suture. 2. Demonstrate the proper way to remove sutures.	1	1	0
Surgical Simulation	1. Facilitate and adapt using appropriate client communication, patient preparation, anesthetic considerations, anesthetic set-up, anesthetic induction, prepping, gowning, gloving, opening packs, intubations, monitoring, draping, surgery packs, and post-operative care in surgical simulation.	1	2	0
Special Procedures	1. Explain the duties of an anesthetist, monitor, and circulator. 2. Perform the duties of an anesthetist, monitor, and circulator. 3. Plan, perform, and adapt anesthesia in dogs using a rebreathing system and using knowledge and skills of anesthesia induction, maintenance, monitoring, and extubation.	0.5	0	3

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Hourly Exams	1. Evaluate and respond to exam questions based on your knowledge. Justify your answers.	2	0	0
Lab Practicals	1. Evaluate and respond to lab practical questions based on your knowledge and skills. Justify your answers.	0	6	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	30	15