Course Information Form (CIF)

Course Code: VTT 212

Course Title: Surgical Technology II

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: 1	Clinical: 2	**Total: 3**

General Course Information

Catalog Description

Surgical support and anesthesia for dogs and cats: gas anesthesia, non-rebreathing systems, partial rebreathing systems, nitrous oxide supplementation, surgical assisting, emergency procedures, surgical drugs, fluids, and pain management.

General Course Objectives

Demonstrate ability to apply skills as a surgical assistant and anesthetist for dogs and cats, including implementation of gas anesthesia, surgical assisting, handling emergency procedures, proper use and dosages of anesthetic drugs, administration of fluid therapy, and pain management.

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 118
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, and 2-4 drug protocols/homework assignments.

Instructional Materials and Additional Supplies

Small Animal Surgical Nursing, Current Addition, Tear, M. 9780323759137
Anesthesia and Analgesia for Veterinary Technicians, Current Edition, Thomas and Lerche. 978-0323249713

Course Content

General Learning Outcomes (GLOs)

- Communication: Students will demonstrate the ability to read, write, listen, and speak effectively.
- 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
Anesthetic Machines and Systems	1. Compare a rebreathing circle and a non-rebreathing system; recognize when each system is used. 2. Compare the different types of non-rebreathing systems. 3. Compare a vaporizer in circle versus a vaporizer out of circle; recognize when each type is used. 4. List oxygen flow rates for various anesthetic systems. 5. List the recommended vaporizer settings for isoflurane, sevoflurane and halothane. 6. Accurately assemble and operate a rebreathing and non-rebreathing anesthetic system. 7. Correctly manipulate the vaporizer to the correct setting during anesthesia. 8. Describe the different methods of anesthetic induction. 9. Explain the cautions and risks associated with each method of anesthetic induction. 10. Explain how to administer anesthetic drugs with a mask on a cat or dog. 11. Identify an E tank based on color and attachment. 12. Correctly assemble an anesthetic machine using an E tank. 13. Take part in anesthetic induction, anesthetic control, anesthetic monitoring, and patient recovery on anesthetized animals.	3	1	12
Patient Monitoring	1. Discuss how the patient parameters are used when monitoring anesthesia. 2. Correctly perform the assembly, setup, operation, care, maintenance, and troubleshooting of the monitoring devices. 3. Compare and contrast various physiologic changes that may occur during anesthesia based on monitoring. 4. Discuss the causes of apnea and effects of apnea. 5. Perform complete monitoring of patient under anesthesia, assessing cardiovascular, respiratory, and neurologic parameters. 6. Identify normal patient parameters while under anesthesia. 7. Compare and contrast abnormal monitoring parameters and list common causes of abnormal monitoring parameters. 8. Determine anesthetic depth using monitoring parameters. 9. Demonstrate the proper response to apnea under anesthesia and what to rule in/rule out.	2	1	9

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Pain Management	1. List common surgical and medical conditions that are considered to be painful. 2. List the main steps of the pain pathway. 3. List where drugs are effective at the steps of the pain pathway. 4. Discuss the consequences of untreated pain. 5. Recognize the most common sign of pain in animals. 6. Describe how to recognize and assess pain-associated behaviors in animals. 7. Explain how tissue trauma causes pain with regard to inflammation and cytokines. 8. Discuss the pain protocol used on Parkland College VT surgery animals. 9. List examples and the benefits of multimodal therapy. 10. Describe a testicular block and an incisional block on dogs and cats. 11. Demonstrate the proper administration of a pain protocol. 12. Describe nursing care that relieves discomfort in hospitalized patients. 13. Assess pain-associated behaviors in the animals undergoing surgery. 14. Chart pain-associated behaviors in animals undergoing surgery. 15. Correctly administer peri-operative analgesics as directed by the veterinarian.	2	1	3
Selected Drug Categories	1. Categorize anesthetic agents and adjuncts based on route of administration, time of administration, principal effect, or chemistry. 2. Discuss mode of action, general effects, and uses associated with the following categories of drugs: autonomic nervous system drugs (parasympathetic and sympathetic drugs), tranquilizers and sedatives, opiates/opioids, opioid antagonists, barbiturates, dissociative agents, central acting skeletal muscle relaxants, analeptics, neuromuscular blockers, hypnotic induction agents, non-steroidal anti-inflammatories (NSAIDs), and local anesthetics. 3. Categorize specific mode of action, specific effects, adverse effects, and specific uses of selected anesthetic drugs discussed in lecture. 4. Discuss specific mode of action, specific effects, adverse effects, and specific uses of inotropic drugs, positive chronotropic drugs, and vasopressors. 5. Measure principles of safe administration of anesthetic agents and adjuncts.	4	0	3
Wounds and Wound Healing	1. Explain the four types of wound healing: first intention, delayed primary closure, secondary closure, and second intention; give examples of the four types of wound healing. 2. Explain the factors involved in wound healing and the stages of wound healing. 3. Define granulation tissue and describe its characteristics. 4. Discuss healing as it relates to tensile strength. 5. Describe the time it takes for an uncomplicated wound to heal. 6. Define the two types of wounds (open and closed); give specific examples of open wounds and closed wounds. 7. Explain the four types of open wounds: clean, clean contaminated, contaminated, and infected wounds; give examples of the four types of open wounds. 8. Identify fast healing tissues, slow healing tissues, and variable healing tissues; give examples of all. 9. Identify factors leading to dehiscence and infection. 10. Identify wound treatment goals, and recognize when a wound is not healing normally. 11. Discuss home care for owners regarding wound care. 12. Discuss special considerations regarding equine wounds.	2	1	0

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Shock	1. Discuss basic physiologic concepts necessary for successful treatment of shock, including types of shock and causes such as hypovolemic, cardiogenic, neurogenic, anaphylactic, and septic endotoxic shock. 2. Recognize and list the signs/symptoms of shock. 3. Explain emergency treatment of the different types of shock.	1	0	0
Cardiopulmonary Resuscitation	1. Explain how CPR is used in an anesthetic emergency. 2. Discuss and identify the different drugs used for cardiovascular and respiratory emergencies. 3. Imitate CPR on a canine CPR model with regard to their thoracic conformation. 4. Imitate CPR in a demo of a patient that was and was not under anesthesia.	1	2	0
Selected Emergencies	1. Discuss the role of the veterinary technician with regard to handling emergencies. 2. Compare examples of appropriate client communication, including questions to ask clients and instructions to give clients. 3. Describe the appropriate response to common emergencies, including dyspnea, respiratory arrest, and cardiac arrest. 4. Characterize common situations that may produce a life-threatening state, including types of traumatic injuries. 5. Describe the role of the veterinary technician and the steps involved when instituting emergency care to various traumatic injuries discussed in lecture.	4	0	0
Body Fluid Composition	1. Discuss body fluid composition and the basic concepts of fluid physiology, including water balance in the body and the principles of fluid balance. 2. Demonstrate the principles of fluid therapy. 3. Compare the use of the different types of fluids used in veterinary medicine. 4. Describe hypotonic fluids, isotonic fluids, and hypertonic fluids and give examples of when these types of fluids are used. 5. Determine the osmolarity of common fluids used in veterinary medicine and classify a given fluid type as isotonic, hypotonic, or hypertonic. 6. Recognize the clinical signs of fluid overload in a patient and list the consequences of fluid overload in a patient.	1	4	0
Acidosis/Alkalosis	1. Define acidosis and alkalosis and discuss the pH changes that occur with metabolic acidosis, respiratory acidosis, metabolic alkalosis, and respiratory alkalosis. 2. Explain the causes of metabolic acidosis, respiratory acidosis, metabolic alkalosis, and respiratory alkalosis. 3. Discuss common treatments for metabolic acidosis, respiratory acidosis, metabolic alkalosis, and respiratory alkalosis.	1	0	0
Fluid Loss Calculations	1. Discuss and anticipate the effects of dehydration and calculate fluid requirements for a patient based on replacement due to dehydration, maintenance amounts, and continuing losses. 2. Explain the physical indicators of dehydration seen on a physical examination. 3. Describe and follow procedures for clinical evaluation of fluid loss. 4. List the five common routes of fluids and discuss the advantages and disadvantages of each route.	1	2	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Large Animal Anesthesia	1. List anesthetic techniques commonly used in equine practice. 2. Explain the special anesthetic challenges resulting from patient temperament, large body size, and equine anatomy and physiology. 3. List the causes of nasal congestion, atelectasis, neuropathy, and myopathy, and describe strategies to prevent these anesthetic complications. 4. Discuss the differences between anesthetic protocols and procedures used for field anesthesia and anesthesia in a clinic. 5. Explain the indications for, the advantages of, and risks associated with standing chemical restraint. 6. Discuss maintenance of general anesthesia with an inhalant agent and with intravenous agents. 7. List principles of providing appropriate patient positioning, comfort, and safety during anesthetic maintenance. 8. Explain the significance of hypoventilation, hypoxemia, and hypotension in equine patients, and describe prevention and management strategies of these anesthetic complications. 9. Discuss general nursing care during the post-anesthetic period and list factors that affect patient recovery from anesthesia, the signs of recovery, appropriate monitoring during recovery, and oxygen therapy during recovery. 10. Discuss the main physiologic and anatomic differences that influence anesthetic management of ruminants and swine. 11. Explain how to prepare a ruminant or porcine patient for anesthesia, the importance of positioning of ruminants under general anesthesia, and how to position a ruminant for recovery. 12. Explain the anesthetic concerns and challenges regarding anesthetizing pigs and the signs of porcine stress syndrome.	2	0	0
Special Procedures	1. Assemble and place an IV catheter in a cephalic and saphenous vein. 2. Formulate IV fluid rates and administer fluids using gravity flow and an infusion pump. 3. Follow the steps of performing a cystocentesis, and perform a cystocentesis. 4. Discuss the purpose and functions of an electrocautery unit and a suction unit, and demonstrate their uses. 5. Initiate a surgical prep on a male cat for a castration and monitor cats post-operatively for swelling, inflammation, and pain. 6. Initiate a surgical prep on a dog or cat for an ovariohysterectomy, and on a dog for a castration. 7. Explain a testicular block for a castration, and a line block for an OHE incision. 8. Take part as a surgical assistant to the surgeon during a castration or ovariohysterectomy. 9. Communicate common acceptable changes seen with post-operative castration and OHE incisions. 10. List the indications for placing a urinary catheter in a male cat and discuss the risks of catheterizing an obstructed male cat. 11. Discuss the differences between an open and a closed urinary feline catheter. 12. Follow the steps in placing a urinary catheter in male dog as a group, and discuss the precautions of placing an indwelling urinary catheter. 13. Follow the steps of placement of a microchip in a dog/cat, as a group.	6	3	3

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	15	30