Bossier Parish Community College
Master Syllabus

Course Prefix and Number: STEC 111 **Credit Hours:** 3

Course Title: Clinical Specialties

Course Prerequisites: STEC 100, STEC 102, STEC 102L

Course Corequisites; STEC 110, STEC 112

Clock Hours: 45 hours lecture

Time Increments: semester

Textbook: Fuller, Joanna K.; Surgical Technology Principles and Practice, 8th edition

Course Description:
This course continues from STEC 102 building on previous information and providing the student with additional technical knowledge and skills utilized by surgical technologists, including patient transport, transfer and positioning, suture selection and preparation, receiving medications to the sterile field, Disaster Preparedness & Response, and MIS surgery. Enrollment in the Surgical Technology Program courses is limited to those students who have been selected and admitted to the program. Program courses are sequenced by semester and must be taken as a group each semester per program requirements and policies.

Methods of Teaching: Lecture, discussions, textbooks, handouts, audio-visual, computer programs (Live-OR, Websurg), and hands-on demonstration

Learning Outcomes:

At the end of this course, the student will

A. integrate knowledge as it applies to the roll of the surgical technologist in Disaster Preparedness & Response
B. correctly and safely identify, transport, transfer, and position surgery patients of all ages with special considerations for the potential for bodily injury
C. recognize, select, prepare and assist with the use of the various types of sutures and other wound closure devices
D. integrate knowledge of pharmacology to safely use medications, as appropriate to the role of the surgical technologist; and
E. interpret finding from various laboratory and radiographic test.
F. Integrate knowledge of Minimally Invasive surgery with the preparation, set-up, care, and use of advanced technologies in the OR.

To achieve the learning outcomes, the student will

1. describe the characteristics of laser energy. (A)
2. describe the basic parts of the laser chamber. (A)
3. identify safety precautions followed in laser surgery. (A)
4. explain why safety precautions are needed for laser surgery. (A)
5. explain why personnel entering the OR suite during laser surgery must be monitored for compliance with safety precautions. (A)
6. describe the nature of eye injury caused by laser energy. (A)
7. compare the classification of lasers. (A)
8. describe how electricity flows. (A)
9. use proper terminology when discussing electricity. (A)
10. list the variables that affect the output of an electrosurgical unit (ESU). (A)
11. describe safe use of dispersive and active electrodes. (A)
12. explain the difference between impedance and resistance. (A)
13. describe how to set modes on the ESU properly. (A)
14. describe why it is important to recognize occurrences in which settings are too high on the ESU power unit. (A)
15. identify how to incorporate safe body mechanics into patient transport, transfer, and positioning. (B)
16. describe the responsibilities of the surgical tech in patient transport and transfer. (B)
17. use the correct procedure to identify a patient. (B)
18. demonstrate how to assist a patient from a bed to a wheelchair. (B)
19. identify how to ease a patient to the ground in the event of a fall. (B)
20. identify the steps to transport a patient by stretcher safely. (B)
21. demonstrate the transfer of a patient from a bed to a stretcher. (B)
22. identify the proper transport for a pediatric patient. (B)
23. demonstrate the transfer of a patient from a stretcher to the OR table. (B)
24. describe the use of common operating table accessories. (B)
25. demonstrate the transfer of a semiconscious patient from the OR table to a stretcher. (B)
26. describe the consequences of nerve and blood vessel compression. (B)
27. describe the principles of safe positioning. (B)
28. identify methods to prevent shearing injury. (B)
29. describe the stages of decubitus ulcers and how to prevent them. (B)
30. participate in commonly used methods of patient positioning. (B)
31. describe compartment syndrome and how to prevent it. (A,B)
32. describe how to do the following when positioning a patient. (A,B)
    - prevent brachial plexus injury
    - prevent ulnar nerve and cubital tunnel injury
    - prevent injury to the face, ear, and eye during positioning
    - prevent injury to the breasts and genitalia in prone position
    - turn a patient from supine to prone position
33. recognize suture properties and materials by observing and handling suture. (C)
34. identify sutures by package labeling, and select proper sutures. (C)
35. distinguish between inert suture materials and those that cause inflammation. (C)

36. identify and anticipate the need for specific sutures during a procedure. (C)
37. demonstrate proper preparation of sutures for use. (C)
38. properly pass suture-needle combinations. (C)
39. identify the need to maintain sutures on the sterile field in an orderly manner. (C)
40. identify safety precautions to prevent needle-stick injuries during suture use. (C)
41. identify basic needle types and their applications. (C)
42. distinguish between absorbable and non-absorbable sutures. (C)
43. distinguish among different suture sizes. (C)
44. recognize commonly used stapling devices. (C)
45. identify the uses of fibrin glue. (C)
46. discuss the difference between therapeutic and toxic or lethal doses, using correct terminology. (D)
47. correctly identify the parts of a drug label. (D)
48. explain the "six rights" of drug handling. (D)
49. describe the correct method for receiving and passing drugs to and from the sterile field. (D)
50. describe the categories of drugs used intraoperatively. (D)
51. identify the parts of a syringe and explain the importance of syringe safety features. (D)
52. identify basic laboratory test and their indications. (E)
53. identify basic radiographic tests and their indications. (E)
54. identify the components of a complete blood cell count. (E)
55. recognize normal and abnormal values on a complete blood cell count. (E)
56. describe the normal electrocardiogram recording. (E)
57. describe proper precautions associated with radiation studies. (E)
58. participate in hands-on practice with sutures, needles, syringes, dressings, tubes drainage systems, medication, and the dressing of various surgical sites. (A,C,D)
59. utilize various methods to move patients from stretcher to OR table and back. (A,B)

Course Requirements: To earn a grade of "C" or higher the student must earn 75% of the total points for the course and meet <u>all</u> of the following course requirements.

- minimum score of 75% on each test
- scantrons on all tests
- each first test grade is the scored grade
- demonstrate acceptable techniques of patient transport, transfer, and positioning
- demonstrate correct handling of suture and wound closure devises

Outcome Assessment Methods: Written Exams and Skills Evaluations for Transporting, Transferring, Positioning, and suture techniques.

Course Grading Scale:

A- 90% or more of total possible points and demonstrated techniques of patient transport, transfer, positioning and correct handling of suture and wound closure devises
B- 80% or more of total possible points and demonstrated techniques of patient transport, transfer, positioning and correct handling of suture and wound closure devises
C- 70% or more of total possible points and demonstrated techniques of patient transport, transfer, positioning and correct handling of suture and wound closure devises
D- 60% or more of total possible points and demonstrated techniques of patient transport, transfer, positioning and correct handling of suture and wound closure devises
F- less than 60% of total possible points or failure to demonstrate techniques of patient transport, transfer, positioning and correct handling of suture or wound closure devises

Attendance Policy: The college attendance policy, which is available at http://www.bpcc.edu/catalog/current/academicpolicies.html, allows that "more restrictive attendance requirements may apply to some specialized classes such as laboratory, activity, and clinical courses because of the nature of those courses." The attendance policy of the Surgical Technology program is described in the Surgical Technology Clinical Handbook.

Nondiscrimination Statement

Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

COORDINATOR FOR SECTION 504 AND ADA
Angie Cao, Student and Disability Services Specialist
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318-678-6511
acao@bpcc.edu
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Equity/Compliance Coordinator
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Course Content Outline:

Chapter 15: Energy Sources in Surgery

I. Electrical Energy
   A. review of Electricity
II. Key concepts of Electrosurgery
III. Uses of Electrosurgery
   A. effects of Electrical Current on Tissue
IV. Components of Electrosurgery
   A. Power Unit (Generator)
   B. Active Electrode
   C. Controls
   D. Patient Return Electrode (Monopolar Circuit Only)
V. Monopolar Electrosurgery
   A. Patient Return Electrode
VI. Bipolar Electrosurgery
VII. Electrosurgical Working Modes
   A. Cutting
   B. Coagulation
   C. Fulguration
VIII.Electrocautery

IX. Radiofrequency Ablation
X. Electrosurgical Vessel Sealing
XI. Argon-Enhanced Electrosurgery
XII. Electrosurgery Safety
    A. Generator Safety
    B. Active Electrode Safety
XIII. Hazards in Minimally Invasive Surgery
    A. Capacitive Coupling
    B. Directing Coupling
    C. Active electrode Monitoring
    D. Return Electrode Monitoring
    E. Patients with an Implanted Electronic Device
    F. Smoke Plume
XIV. Kinetic Energy
    A. Ultrasonic Energy
    B. Ultrasonic Ablation
XV. Cold Thermal Energy
    A. Cryosurgery
XVI. Laser Energy
    A. Laser Standards and Regulations
    B. How Lasers Work
    C. Laser Media
    D. Laser Safety
    E. Precautions and Guidelines

Chapter 16: Moving, Handling, and Positioning the Surgical Patient

I. Transporting and Transferring the Patient
    A. Body Mechanics
    B. Principles of Safe Patient Transport and Transfer
    C. Patient Identification
    D. Assisting the Ambulatory Patient
    E. Assisting the Inpatient
    F. Transporting Pediatric Patients
II. Positioning the Surgical Patient
    A. Rationale
    B. Duties of the Surgical Technologist
    C. General Operating Table
    D. Patient Injuries and Positioning
    E. Normal Range of Motion
    F. Other Injuries and Accidents
    G. Conditions that Increase the Risk of Injury
    H. Surgical Positions

Chapter 19: Surgical Skills II: Intraoperative and Immediate Post operation Period

I. Hemostasis
   A. Process of Coagulation
   B. Hemostatic Drugs and Agents
   C. Autotransfusion
   D. Thermal and High-Frequency Coagulation
   E. Pneumatic Tourniquet
II. Sutures
   A. Studying and Learning Suture Use
   B. Regulation of Sutures
   C. Structure and Properties of Suture
   D. Natural Absorbable Suture
   E. Synthetic Absorbable Polymers
   F. Absorbable Biopolymer Suture
   G. Nonabsorbable Suture
   H. Surgical Needles
   I. Suture, Storage, Packaging, and Dispensing
   J. Suturing Techniques
   K. Suture Handling Techniques
   L. Surgical Stapling and Ligating Devices
   M. Synthetic Tissue Adhesives
III. Tissue Implants
   A. Important Terms
   B. Grafts
   C. Synthetic Implants
IV. Wound Drainage and Dressings
   A. Wound Drainage
   B. Dressings
   C. Simple and Composite Dressings
V. Wound Healing and Complications
   A. Classification of Wounds
   B. Process of Wound Healing
   C. Phases of Healing
   D. Conditions that Affect Wound Healing
   E. Wound Complications

Chapter 20: Minimally Invasive Surgery (MIS)

I. Minimally Invasive Surgery
   A. Principles of Minimally Invasive Surgery
   B. Advantages of Minimally Invasive Surgery
   C. Potential Disadvantages of minimally Invasive Surgery
   D. Risks Associated with Minimally Invasive Surgery
   E. Surgical specialties
   F. Common Featrues

G. Preoperative Preparation of the Patient
H. Minimally Invasive Surgery Imaging System
I. Operating Instruments Used in Minimally Invasive Surgery
J. Techniques Used in Minimally Invasive
K. Tissue Expansion at the Surgical Site
L. Hemostasis
M. Risks Associated with Electrosurgery
N. Specimen Retrieval
O. Endoscopic Setup
P. Flexible Endoscopy
Q. Reprocessing Endoscopes and Instruments

Chapter 12: Perioperative Pharmacology

I. Origin of Medicines
II. Drug Information Resources
III. Drug Standards and Regulations
    A. Approval and Safety
    B. Quality
    C. Control and Classification
    D. Pregnancy Categories
IV. Drug Handling and State Practice Acts
    A. Definition of Practice
    B. Responsibility and Delegation
V. Identification of Drugs
    A. Nomenclature
VI. Drug Administration Routes
VI. Drug Action
    A. Pharmacokinetics
    B. Pharmacodynamics
    C. Adverse Reactions to Drugs
VII. Medication Process
    A. Preventing Drug Errors: The Five Rights
    B. Drug Procurement: Prescription and Selection
VIII. Drug Packaging
    A. Glass Vial
    B. Glass Ampule
    C. Collapsible Plastic Bag
    D. Rigid Plastic Container
    E. Glass Bottle or Jar
    F. Peel Pouch
IX. Quality Assurance
    A. Reading a Drug Label
X. Drug Measurement
XI. Delivery Devices
    A. Syringe

B. Needles
C. Irrigation Devices

XII. Delivering Drugs to the Sterile Field
A. Recommended Protocol to Prevent Drug Errors
B. Glass Vial
C. Glass Ampule
D. Drug Reconstitution
E. Irrigation Fluids
F. Dry Materials

XIII. Managing Drugs on the Sterile Field
A. Labeling
B. Delivery to the Surgeon
C. Irrigation Solutions

XIV. Selected Drugs Used during Surgery and Interventional Radiology
A. Iodinated and Opaque contrast Media
B. Hemostatics
C. Anticoagulants
D. Antibacterials
E. Diagnostic Dyes or Substances
F. Tissue Stains

XV. Common Medications used in Patient Care
A. Intravenous Fluids
B. Blood and Blood Product
C. Systemic Antimicrobials
D. Antibacterials
E. Antifungals
F. Systemic Anticoagulants
G. Diuretics
H. Gastric Medications
I. Drugs used During Laboe
J. Autonomic Nervous System Agents
K. Cardiac Drugs
L. Endocrine Drugs
M. Reproductive System Drugs
N. Antineoplastic Drugs
O. Alternative Healing Therapies

Chapter 6: Diagnostic and Assessment Procedures

I. Vital Signs
A. Temperature
B. Measuring the Pulse
C. Respiration
D. Blood Pressure

II. Electrocardiography
A. Radiology

- B. Standard Radiography
- C. Contrast Radiography
- D. Fluoroscopy
- E. Mobile C-Arm
- F. Computed Tomography
- G. Magnetic Resonance Imaging
- H. Positron Emission Tomography
- I. Ultrasound

III. Blood Tests
- A. Complete Blood Count
- B. Metabolic Panel
- C. Coagulation Tests
- D. Arterial Blood Gases
- E. ABO Groups
- F. Electrolytes

IV. Urinalysis

V. Microbiological Studies

VI. Pathological Examination of Tissue
- A. Tissue Biopsy

VII. Cancer Terms and Concepts
- A. Definitions
- B. Comparison of Malignant and Benign Tumors
- C. Effects of Malignancy on the Body
- D. Diagnostic Methods

VIII.Nuclear Medicine
- A. Radiation Therapy
- B. Cancer Prevention and Screening

Chapter 13: Anesthesia, Physiological Monitoring, and Post-anesthesia Recovery

I. Important Anesthesia Concepts

II. Anesthesia Principles and Personnel
- A. Physiology of the Central Nervous System
- B. Anesthesia Personnel

III. Anesthesia Evaluation and Preoperative Care
- A. Preoperative Evaluation
- B. Preoperative Preparation of the Patient

IV. Physiological Monitoring During Surgery
- A. Purpose and Rationale
- B. Monitoring Process

V. Methods of Anesthesia
- A. General Anesthesia
- B. Airway Management
- C. Phases of General Anesthesia
- D. Dissociative Anesthesia
- E. Conscious Sedation

F. Drugs Used in General Anesthesia and Conscious Sedation
G. Regional Anesthesia
H. Types of Regional Anesthesia

VI. Physiological Emergencies
A. Regional Drug Toxicity and Allergic Response
B. Cardiopulmonary Arrest
C. Laryngospasm
D. Anaphylaxis
E. Shock
F. Malignant Hyperthermia
G. Hemorrhage
H. Hemolytic Reaction
I. Deep Vein Thrombosis

VII. Post Anesthesia Care Unit (PACU)
A. Description of PACU
B. PACU Procedures
C. Patient assessment and care
D. Postoperative complications
E. Elements of discharge planning
F. Unanticipated PACU outcomes

Chapter 36: Disaster Preparedness and Response
A. Acronyms
B. Training
C. Classification and Definitions of Disaters
D. Disaster management and government structures
E. Disaster cycles
F. Ethical dilemmas in disasters

Reviewed by: A. Smith, May 23, 2022