Course Prefix and Number: STEC 120-101
Credit Hours: 3

Course Title: Surgical Procedures II

Course Prerequisites: STEC 110, STEC 111, STEC 112

Clock Hours: 45 hours lecture

Time Increments: semester

Textbooks: Rothrock, June C. and Alexander, Sherri; *Alexander’s Surgical Procedures*, 1st edition. Fuller, J.; *Surgical Technology Principles and Practice*, 7th edition
Rutherford, Colleen J; *Differentiating Surgical Instruments*

Course Description:
This course covers 7 surgical specialties: Ophthalmic, Oral/Maxillofacial, Thoracic & Pulmonary, Cardiac, Orthopedic, Pediatric, and Peripheral Vascular, as well as Disaster Preparedness & Response and Emergency Trauma Surgery. In each procedure, methods and principles are taught which include care of supplies and equipment, principles of patient safety, skin preps, patient positioning, and draping the operative site. Selected mock surgeries will be performed in the mock OR lab.

Methods of Teaching: Lecture, team discussions with required reading assignments and homework, 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. apply knowledge of medical terminology and anatomy to set up the surgical field and select and maintain appropriate instrumentation.

To achieve the learning outcomes, the student will

1. analyze and explain the psychological effects and considerations of having eye surgery. (A)
2. practice safe procedures and techniques in eye surgery. (A)
3. describe the anatomy of the eye. (A)
4. explain how to prepare the microscope for use and care for it properly. (A)
5. name and recognize commonly used eye instruments. (A)
6. differentiate the types of ophthalmic drugs and their uses. (A)
7. identify surgical techniques to repair maxillofacial fractures. (A)
8. identify the instrumentation and equipment used in cardiac and pulmonary surgery. (A)
9. explain endoscopic procedures of the lungs and mediastinum. (A)
10. describe the proper method of handling specimens in cardiopulmonary surgery. (A)
11. explain the use of a water-seal chest drainage system. (A)
12. describe common cardiac and pulmonary procedures. (A)
13. discuss orthopedic terminology. (A)
14. identify the muscle groups, the bones, and their functions. (A)
15. identify the names and uses of orthopedic instruments, hardware, and supplies. (A)
16. describe the proper sequence of events in orthopedic procedures. (A)
17. describe the types of diagnostic tests and laboratory tests used preoperatively in the orthopedic patient. (A)
18. identify the anatomical structure and functions of arteries and veins. (A)
19. identify common obstructions of vessels. (A)
20. describe the scheme for performing bypass grafts. (A)
21. identify the goal of peripheral vascular surgery. (A)
22. identify various grafts used for peripheral vascular surgery. (A)
23. read each chapter prior to attending class. (A)

Course Requirements: To earn a grade of “C” or higher the student must earn 75% of the total points for the course and meet all of the following course requirements.

- minimum average of 75% on tests with no test score less than 75%
- minimum test score of 90% on all medical term quizzes
- reading assignments/homework (outline of each chapter, turned in at the start of each chapter) will comprise 20% of total grade
- 80% average on anatomy/physiology quizzes
- 80% on mid-term comprehensive exam

Outcome Assessment Methods: Written exams

Course Grading Scale:

A- 90% or more of total points with no test score less than 75%
B- 80% or more of total points with no test score less than 75%
C- 70% or more of total points with no test score less than 75%
D- 60% or more of total points with no test score less than 75%
F- less than 60% of total points or one or more lest scores less than 75%
**Attendance Policy:** The college attendance policy, which is available at [http://www.bpcc.edu/catalog/current/academicpolicies.html](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.

**Course Fees:** $6.00

**Nondiscrimination Statement**

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**Course Content Outline:**

Chapter 27: Ophthalmic Surgery

I. Surgical Anatomy
   A. Orbital Cavity
   B. Eyelids
   C. Globe
   D. Eye Muscles
   E. Conjunctiva
   F. Cornea
   G. Sclera
H. Choroid and Ciliary Body
I. Iris
J. Retina
K. Lens
L. Anterior and Posterior Chambers
M. Lacrimal Apparatus

II. Refraction

III. Pathology of the Eye

IV. Diagnostic Testing

V. Perioperative Considerations
   A. Psychological Considerations in Eye Surgery
   B. Verification of the Operative Site
   C. Positioning the Patient for Ophthalmic Surgery
   D. Prepping and Draping
   E. Anesthesia
   F. Ophthalmic Drugs
   G. Instruments
   H. Equipment and Supplies

VI. Surgical Techniques in Eye Surgery
   A. Microsurgery
   B. Operating Microscope

VII. Role of the Scrubbed Surgical Technologist

VIII. Surgical Procedures
   A. Excision of a Chalazion
   B. Repair of an Entropion
   C. Repair of an Ectropion
   D. Excision of a Pterygium
   E. Dacryocystorhinostomy
   F. Lacrimal Duct Probing
   G. Muscle Resection and Recession
   H. Penetrating Keratoplasty (Corneal Transplantation)
   I. Lasik (Laser in Situ Keratomileusis)
   J. Extracapsular Cataract Extraction (Phacoemulsification)
   K. Anterior Vitrectomy
   L. Sclera Buckling Procedure for a Detached Retina
   M. Filtering Procedures and Trabeculectomy
   N. Argon Laser Trabeculoplasty
   O. Orbital Decompression
   P. Enucleation
   Q. Orbital Exenteration

Chapter 29: Oral and Maxillofacial Surgery

I. Surgical Anatomy
   A. Bones of the Face
II. Pathology of the Midface and mandible
III. Diagnostic Procedures
IV. Equipment and Instruments
   A. Power Drill
   B. Plates and Screws
V. Prepping and Draping
VI. Sponges and Dressings
   A. Sponges
   B. Dressings
VII. Surgical Procedures of the Face
   A. Maxillomandibular Fixation (application of arch bars)
   B. Open Reduction/Internal Fixation: Midface Fracture
   C. Open Reduction/Internal Fixation: Frontal Sinus Fracture
   D. Open Reduction/Internal Fixation: Orbital Floor Fracture
   E. Open Reduction/Internal Fixation: Mandibular Fracture
VIII. Oral Surgery
   A. Dental Implants
   B. Tooth Extraction
IX. Orthognathic Procedures
   A. Mandibular Advancement
   B. Midface (Maxillary) Advancement
   C. Temporomandibular Joint Arthroplasty

Chapter 33: Thoracic and Pulmonary Surgery

I. Surgical Anatomy
   A. Upper Respiratory Tract
   B. Pharynx
   C. Larynx
   D. Trachea
   E. Bronchi
   F. Lungs
II. Pathology of the Thoracic and Pulmonary Systems
III. Diagnostic Tests
   A. Pulmonary Function
   B. Laboratory Tests
   C. Imaging Studies
IV. Perioperative Considerations
   A. Prepping and Draping
   B. Instruments
   C. Closed Chest Drainage
V. Surgical Procedures
   A. Insertion of Chest Tubes
   B. Bronchoscopy
   C. Rigid Bronchoscopy
D. Flexible Bronchoscopy
E. Mediastinoscopy
F. Thoracoscopic Surgery (Video-assisted Thorascopic Surgery)
G. Thoracoscopy: Lung Biopsy
H. Lung Volume Reduction Surgery
I. Scalene Node Biopsy
J. Thoracotomy
K. Lobectomy
L. Pneumonectomy
M. Rib Resection for Thoracic Outlet Syndrome
N. Decortications of the Lung
O. Lung Transplantation

Chapter 34: Cardiac Surgery

I. Surgical Anatomy
   A. Heart
   B. Heart Valves
   C. Cardiac Cycle
   D. Conduction System
II. Pathology of the Heart
III. Diagnostic Procedures
   A. Cardiac Catheterization
IV. Perioperative Considerations
   A. Positioning
   B. Instruments
   C. Equipment and supplies
   D. Drugs
V. Surgical Procedures
   A. Median Sternotomy
   B. Cardiopulmonary Bypass
   C. Sump Catheterization
   D. Infusion of a Cardioplegic Solution
   E. Coronary Artery Bypass Grafting
   F. Transmyocardial Revascularization
   G. Resection of a Left Ventricular Aneurysm
   H. Aortic Valve Replacement
   I. Mitral Valve Repair and Replacement
   J. Resection of an Aneurysm of the Ascending Aorta
   K. Resection of an Aneurysm of the Aortic Arch
   L. Resection of an Aneurysm of the Descending Thoracic Aorta
   M. Endovascular Repair of a Thoracic Aneurysm
   N. Insertion of an Artificial Cardiac Pacemaker
   O. Replacement of a Pacemaker Battery
   P. Implantable Cardioverter Defibrillator
   Q. Surgery for Atrial Fibrillation (Cardiac Ablation)
R. Pericardial Window  
S. Pericardiectomy  
VI. Heart Failure  
A. Insertion and Removal of an Intraaortic Balloon catheter  
B. Ventricular assist Device  
C. Heart Transplantation.  

Chapter 31: Orthopedic Surgery

I. Surgical Anatomy  
A. Skeleton  
B. Bone Tissue  
C. Bone Membranes  
D. Bone Structure and Shape  
E. Landmarks  
F. Bone Healing  

II. Joints  
A. Classification  
B. Joint Movement  

III. Soft Connective Tissues  
A. Tendons and Ligaments  
B. Muscle  

IV. Pathology  
V. Diagnostic Procedures  
A. Special Studies  

VI. Patient Transport and Transfer  
VII. Positioning  
VIII. Hemostasis  
A. Pneumatic Tourniquet  
B. Hemostatic Agents  
IX. Infection Control  
X. Fractures  
A. Classification of Fractures  
B. Fracture Patterns  
C. Biomechanical Forces on Bone  
D. Fracture Repair  

XI. Orthopedic Technology  
A. Power Equipment  
B. Hand Instruments  
C. Orthopedic Implants  
D. Joint Replacement Implants  
E. Grafts, Bone Cement, and Bioactive materials  
F. Bone Cement  
G. Casting  
H. Traction  
I. Modular Rod and Pin Fixation
J. Arthroscopic Surgery

XII. Shoulder and Arm

XIII. Surgical Approaches to the Shoulder
   A. Bankart Procedure
   B. Open Rotator Cuff Repair
   C. Plating of the Proximal Humerus
   D. Shoulder Arthroscopy
   E. Shoulder Arthroplasty
   F. Elbow Arthroplasty

XIV. Wrist and Hand
   A. Open Reduction and internal Fixation of the Wrist
   B. Carpal Tunnel Release
   C. Metacarpophalangeal Joint Arthroplasty
   D. Dupuytren Contracture

XV. Hip and Pelvis
   A. Femoral Neck Fractures
   B. Intramedullary Femoral Nailing
   C. Hip Arthroplasty
   D. Fracture of the Pelvis

XVI. Knee and Lower Leg
   A. Knee Arthroscopy
   B. Arthroscopic Meniscectomy
   C. Arthroscopic Anterior Cruciate Ligament Repair
   D. Knee Arthroplasty
   E. Intramedullary Nailing (Tibia)

XVII. Foot
   A. Repair of the Achilles Tendon
   B. Triple Arthrodesis
   C. Fracture of the Ankle
   D. Bunionectomy
   E. Hammertoe Correction

Chapter 32: Peripheral Vascular Surgery

I. Surgical Anatomy
   A. Structure of Blood Vessels
   B. Pulmonary and Systemic Circulatory Systems
   C. Blood Pressure
   D. Blood Vessels of the Body
   E. Lymphatic System

II. Pathology of the Peripheral vascular System

III. Diagnostic Procedures
   A. Arterial Plethysmography
   B. Doppler “Scanning
   C. Arteriography
   D. Intravascular Ultrasonography
IV. Instruments
   A. Vascular Clamps
   B. Scissors
   C. Forceps
   D. Retractors
   E. Suction Tips
   F. Tunnler

V. Equipment and Supplies
   A. Sutures
   B. Vascular Grafts
   C. Catheters
   D. Stents
   E. Vessel Retraction
   F. Drugs

VI. Techniques in Vascular Surgery
   A. Endarterectomy
   B. Vessel Anastomosis

VII. Surgical Procedures
   A. Intraoperative Angiography
   B. Transluminal Angioplasty
   C. Insertion of a Vena Cava Filter
   D. Vascular Access for Renal Hemodialysis
   E. Thrombectomy (Open Procedure)
   F. Carotid Endarterectomy
   G. Abdominal Aortic Aneurysm
   H. Aortofemoral Bypass
   I. Axillofemoral Bypass
   J. Femorofemoral Bypass
   K. In Situ Saphenous Femoropopliteal Bypass
   L. Femoropopliteal Bypass
   M. Saphenous Vein Graaft
   N. Management of Varicose Veins
   O. Above-the-Knee Amputation

Chapter 35: Pediatric Surgery (Take-home exam)

I. Physiological and Anatomical Considerations
   A. Thermoregulation
   B. Perioperative Interventions to Maintain Normothermia
   C. Fluid Balance
   D. Respiratory System and Airway

II. Pathology

III. Anesthesia
   A. Preparation for Anesthesia
   B. Preoperative Medication and Induction

IV. Psychosocial Care of the Pediatric Patient
A. Developmental Stages of the Child

V. Safety of the Pediatric Patient
   A. Safe Handling of Drugs
   B. Transportation of the Pediatric Patient
   C. Positioning of the Patient
   D. Electrosurgery
   E. Instruments
   F. Sponges
   G. Sutures

VI. Surgical Procedures
   A. Repair of Cleft Lip
   B. Repair of a Cleft Palate
   C. Otoplasty
   D. Reconstruction of the Ear
   E. Correction of Esophageal Atresia and Tracheoesophageal Fistula
   F. Pyloromyotomy
   G. Resection and Pull-Through for Hirschsprung Disease
   H. Bowel Reconstruction for Imperforate Anus
   I. Reduction of Intussusception
   J. Reduction of a Volvulus
   K. Repair of an Omphalocele
   L. Repair of Bladder Exstrophy/Epispadias
   M. Orchiopexy for an Undescended Testicle
   N. Closure of a Patent Ductus Arteriosus
   O. Correction of a Coarctation of the Thoracic Aorta
   P. Correction of Pulmonary Valve Stenosis
   Q. Closure of an Atrial Septal Defect
   R. Closure of a Ventricular Septal Defect
   S. Total Correction of Tetralogy of Fallot
   T. Repair of Pectus Excavatum
   U. Neural Tube Defects
   V. Repair of a Myelomeningocele
   W. Correction of Syndactyly

Reviewed by: A. Smith, January 2017