SURGICAL PHARMACOLOGY
Course Syllabus

Course Number: STAP-0203  
OHLAP Credit: No
OCAS Code: None
Course Length: 30 Hours
Career Cluster: Health Science
Career Pathway: Therapeutic Services
Career Major(s): Surgical Technologist (Accredited Program)

Pre-requisite(s):

Course Description: This course familiarizes the student with the various drugs used in surgery and their administration. The student will demonstrate an understanding of basic anesthesia equipment, drugs and methods in order to function effectively in the surgical setting. Upon course completion the student may assist the anesthesia personnel if required.


Online Resources:
Blackboard

Course Objectives:
A. Demonstrate the use of basic mathematic skills.
B. Identify commonly used drugs in surgery, their actions, indications and side effects.
C. Describe different types of anesthesia monitoring devices utilized in order to maintain homeostasis.
D. Compare methods, agents and techniques of anesthesia administration.
E. Discuss characteristics of IV solution, blood replacements, blood components and blood substitutes.
F. Demonstrate the receiving and handling of pharmacological agents on the sterile field.
G. Explain anesthesia complications and interventions.
H. Demonstrate ability to utilize the metric system of conversion.

1 ODCTE Objective
All unmarked objectives are TTC instructor developed.
Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures:
1. Students are graded on theory and performance.
2. Each course must be passed with eighty (80%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.
4. Career Major grades established during coursework are a major criteria in successfully obtaining certification.

Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 3.0 or better.

Chapter Learning Objectives and Content Outlines

Introduction to Pharmacology
Chapter Objectives:
- Calculate medication conversions and dosages
- Calculate metric conversions as related to the surgical patient
- Apply general terminology to syringes and needles
- Demonstrate proper handling of syringes and needles
- Correlate use of syringe and needle types

Content Outline:
- Metric system conversions
- Dosage calculations
- Height and weight
- Body temperature
- Use of syringes in the Operating Room
- Characteristics of syringes
- Calibrations on needles
- Types of syringes including injection and aspiration syringes
- Sterile Packaging of syringes
- Characteristics of hypodermic needles
- Types and uses of hypodermic and spinal needles
- Sterile packaging of needles
- Care and Handling of needles
- Giving and receiving medications, sterile vs. non-sterile roles
- Labeling medications
- Medication packaging
- Demonstration skill for handling/labeling syringes, needles, and medications in sterile and non-sterile roles.
Pharmacology Agents
Chapter Objectives:

- Apply general terminology to medication use.
- Prepare and manage medications and solutions
- Understand use of medications in the care of the surgical patient
- Calculate medication conversions and dosages
- Prepare and manage medications and solutions

Content Outline:

- Terms/Definitions
- Purpose of Pharmacology Agents
- Medication sources/drug forms
- Nomenclature
- Classifications
- Care and Handling of medications and solutions/labeling
- Medication publications/Reference guides
- Routes of administration
- Common medications used in surgery
- Anticoagulants
- Antibiotic/Anti-infectives
- Hemostatic Agents
- Narcotics
- Benzodiazepines
- Diuretics
- Steroids
- Oxytocics
- Contrast media
- Surgical Dyes/skin marking
- Volume expanders
- Blood replacement products
- Dantrolene
Anesthesia Chapter Objectives:

- Discuss anesthesia complications and interventions
- Compare methods, agents, and techniques of anesthesia administration and preparation
- Correlate anesthesia monitoring devices with patient homeostasis.
- Analyze the principles of anesthesia administration as well as be able to explain the role of individual team members in regards to anesthesia preparation of the surgical patient.
- Apply general terminology to anesthesia uses

Anesthesia Content Outline:

- Definitions/Terms (anesthesia and related terms)
- Complications of anesthesia
- Patient Risk Factors – ASA Classification
- Co-morbid conditions
- Emergency situations, team assistance administration
- Assessment to determine anesthesia types/choice
- Preferences – Surgeon, Anesthesia care provider, patient

Types of Anesthesia administration:

- General – IV, Inhalation
- Regional – Spinal, Epidural, Caudal, Rectal, Nerve block, Bier block
- Monitoring/devices – invasive, noninvasive
- Documentation
- Alternative methods of anesthesia

Pre – Op medications:

- Sedative/hypnotic
- Analgesics – natural, synthetic
- Anti cholinergics
- Antacids/H2-receptor blocking agents
- Antiemetics
- Patient position for induction
- Related Patient Care Devices
- Supplies needed for General, Regional anesthetics
- Intubation/Extubation, assistive devices
- Phases/Stages of General anesthesia

Anesthetic Agents:

- IV
- Inhalation
- Neuromuscular blocking agents
- Antagonistic agents

Local Anesthetics:

- Injection
- Topical
- Alternative Anesthesia