Bossier Parish Community College
Master Syllabus

Course Prefix and Number: PHAR 110 **Credit Hours:** 2

Course Title: Sterile Products

Course Prerequisite: Phar 101, Phar 102, Phar 102L, Phar 104

Course Co-requisite: Phar 120; Phar 110 Lab

Textbooks: McCartney, Lisa; Sterile Compounding and Aseptic Technique, first edition

Course Description:
This course is designed to provide an introduction to aseptic techniques, admixture preparation, incompatibility and stability, irrigation solutions, calculations for intravenous solutions, total parenteral nutrition and chemotherapy.

Learning Outcomes:

A- Demonstrate basic knowledge of anatomy, physiology, pharmacology, and medical terminology relevant to the pharmacy technician's role.

B- Perform mathematical calculations essential to the duties of pharmacy technicians in a variety of settings.

C- Describe concepts related to preparation for sterile compounding

D- Describe pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual and safety requirements.

E- Describe Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH), and United States Pharmacopeia (USP) requirements for prevention and treatment of exposure to hazardous substances (e.g., risk assessment, personal protection equipment, eyewash, spill kit).

To achieve the learning outcomes, the student will

I. Sterile Compounding as a Pharmacy Technician (A, C, D)
   1. Describe the historical roots of pharmacy and sterile compounding.
   2. Define sterile compounding and aseptic technique.
   3. Describe the ways in which sterile compounding and aseptic technique processes may affect patient health and safety.
   4. Discuss the training requirements for pharmacy technicians who prepare sterile products.

II. The Sterile compounding Environment (A, C, D, E)
   1. Identify the origin of the pharmacy clean room and procedures for sterile compounding.

2. Describe anteroom and clean room setup and characteristics.
3. Describe the various ISO levels that are appropriate for sterile compounding.
4. Classify the four sterile compounding risk levels.

III. Sterile Compounding Supplies (A, C, D)
1. Describe various components of the most frequently used sterile compounding supplies.
2. Explain the rational for using particular supplies in specific compounding situations.
3. Identify the critical sites of commonly used sterile compounding supplies.

IV. Medication Orders and Labeling (A, C)
1. Describe the difference between a prescription and a medication order.
2. List common medical and pharmacy terminology, abbreviations, acronyms, and symbols.
3. Identify pharmacy directions written in signa language.
4. Recognize physician instructions and other pertinent information on a medication order.
5. Identify the various components of a compounded sterile preparation label.

V. Calculations for Sterile Compounding (B)
1. Discuss the principles of pharmacy dosage calculations.
2. Practice several types of pharmaceutical calculations using a basic formula, ratio and proportion, dimensional analysis, intravenous flow rates, intravenous drip rates, and allegations.
3. Determine the best method of solving pharmaceutical dosage questions based on the medication labeling and sterile compounding procedure required.

VI. Aseptic Garbing, Hand Washing, and Gloving (A, C, D, E)
1. Describe the connections between early concepts of germ transmission and current procedures for aseptic
2. Examine the procedures for aseptic grabbing, handwashing, and gloving according to UDP <797> guidelines.
3. Identify ways that aseptic grabbing, hand washing, and gloving protect the patient from infection.

VII. Cleaning the Horizontal Laminar Airflow Hood (C, D)
1. Describe early cleanliness methods and disinfection practices.
2. Discuss the rationale for using a hood when preparing sterile products.
3. Describe the components of the horizontal laminar airflow hood.

VIII. Large-Volume Parenteral Preparations (A, C, D, E)
1. Explain the physiology of fluid balance and the chemical properties of parenteral products.
2. Identify the risks associated with parenteral administration.
3. Identify the USP<797> procedures that must be performed prior to compounding large-volume parenteral preparations.

IX. Small-Volume Parenteral Preparations (A, C, D, E)

1. Discuss the USP <797> procedures that must be performed prior to sterile compounding procedures.
2. Describe compounding situations in which certain supply items should be used during small-volume preparations.
3. Discover the USP <797> procedures that must be performed during small-volume parenteral preparation.

X. Ampule-based Preparations (A, C, D, E)
1. Describe the identifying characteristics of ampules and their purpose in sterile compounding procedures.
2. Identify the USP<797> procedures that must be performed during the compounding of ampule-based preparations.
3. Recognize the safety issues associated with the opening of ampules.

XI. Narcotic Preparations (A, C, D, E)
1. Describe the history of narcotic medications.
2. Discuss the legal regulations and procedures that must be followed when preparing various controlled substances for parental administration.
3. Identify the USP<797> procedures that must be performed when preparing narcotic compounding sterile preparations.

XII. Pediatric Preparations (A, C, D, E)
1. Identify the special situations and actions that must be considered when preparing medicine for pediatric use.
2. Identify the USP<797> procedures that must be performed when compounding pediatric preparations.

XIII. Total Parental Nutrition (A, C, D, E)
1. Identify the special situations and actions that must be considered when preparing total parenteral nutrition.
2. Recognize the routes of administration and delivery options for total parenteral nutrition.
3. Identify the risk associated with parenteral preparations.
4. Identify the USP<797> procedures that must be performed when compounding total parenteral nutrition.

XIV. Chemotherapy Products and Procedures (A, C, D, E)
1. Identify the special situations and actions that must be considered when preparing chemotherapy.
2. Identify the USP<797> procedures that must be performed when compounding chemotherapy.
3. Discuss the requirements of USP <800> guideline responsibilities of pharmacy personal in handling hazardous drugs/materials.

Course Requirements: To earn a grade of "C" or higher the student must earn 70% of the total points for the course and meet <u>all</u> of the following course requirements.

- minimum average of 70% on the comprehensive midterm and final exam
- minimum overall grade average of 70% in lecture class

Course Grading Scale

A- 90% or more of total possible points (minimum average of 70% in lecture minimum average of 70% on the midterm and final exam.
B- 80% or more of total possible points (minimum average of 70% in lecture minimum average of 70% on the midterm and final exam.
C- 70% or more of total possible points (minimum average of 70% in lecture minimum average of 70% on the midterm and final exam.
D- 60% or more of total possible points (minimum average of 70% in lecture minimum average of 70% on the midterm and final exam.
F- less than 60% of total possible points or less than a 70% average in lecture or less than 70% average on the midterm and final exam.

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 Pharmacy Tech program is described in the Pharmacy Technician Handbook.

Nondiscrimination Statement
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