

# TECHNICAL COLLEGE SYSTEM OF GEORGIA

ACADEMIC AFFAIRS DIVISION – OFFICE OF TECHNICAL EDUCATION

## INFORMATION TICKET

Date: 5/24/2022

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Process	Action Required
<input checked="" type="checkbox"/> Curriculum Revision	<input type="checkbox"/> Notify Appropriate Personnel
<input checked="" type="checkbox"/> Course Revision	<input type="checkbox"/> Submit Vote
<input type="checkbox"/> Probe Notice	Submit Vote by: [Date]
<input type="checkbox"/> Probe Feedback	<input type="checkbox"/> Notify Faculty and Administration
<input type="checkbox"/> Probe Outcome	<input checked="" type="checkbox"/> Information Only
<input type="checkbox"/> Other	

**PAS Group Title/PAS Code: Pharmacy Technology/0910**

Program Standard Title/Major Code(s) and/or Course Standard Title/Course Code(s):	
Pharmacy Technology Certificate/PA71	Pharmaceutical Calculations/PHAR 1000
Pharmacy Technology Certificate/PB71	Pharmacy Technology Fundamentals/PHAR 1010
Pharmacy Technology/PT22	Principles of Dispensing Medications/PHAR 1020
Pharmacy Technology/PT23	Pharmacology/PHAR 1040
	Principles of Sterile Medication Preparation/PHAR 1030
	Pharmacy Technology Practicum/PHAR 1050
	Pharmacy Assistant Practicum/PHAR 1055
	Advanced Pharmacy Technology Principles/PHAR 2060
	Advanced Pharmacy Technology Practicum/PHAR 2070

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#### TICKET INFORMATION:

The Pharmacy Technology IFCC met on October 22<sup>nd</sup>, 2021, November 19<sup>th</sup>, 2021, January 21<sup>st</sup>, 2022, and March 17<sup>th</sup>, 2022, to review and discuss needed modifications of the PHAR standards based on the ASHP curriculum standards. Based on decisions made by the IFCC, the following requested revisions will align with the ASHP standards & guidelines:

##### PA71: Pharmacy Technology Certificate

- Within the 2010 version of the program, the following revisions were made,
  - Salary Trends revised.
  - Replaced older versions of the PHAR courses with the updated 202212 versions.
  - Occupational Analysis revised.
  - Program Outcomes revised.
- Total credit and contact hours remained as is.

##### PB71: Pharmacy Technology Certificate

- Within the 2010 version of the program, the following revisions were made,
  - Salary Trends revised.
  - Replaced older versions of the PHAR courses with the updated 202212 versions.
  - Occupational Analysis revised.
  - Program Outcomes revised.
- Total credit and contact hours remained as is.

##### PT22: Pharmacy Technology

- Within the 2010 version of the program, the following revisions were made,
  - Salary Trends revised.
  - Replaced older versions of the PHAR courses with the updated 202212 versions.
  - Occupational Analysis revised.
  - Program Outcomes revised.
- Total credit and contact hours remained as is.

##### PT23: Pharmacy Technology

- Within the 2010 version of the program, the following revisions were made,
  - Salary Trends revised.
  - Replaced older versions of the PHAR courses with the updated 202212 versions.
  - Occupational Analysis revised.
  - Program Outcomes revised.
- Total credit and contact hours remained as is.

PHAR 1000: Pharmaceutical Calculations

- With the creation of a 202212 version, the following revisions were made,
  - Course description remained as is.
  - Revisions of pre-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a pre-req. Additionally, programs can require students to take one of the provided MATH courses to earn credit for the Pharmacy Technology program's MATH requirement.
      - Program Admission was added.
      - MATH 1012: Foundations of Mathematics remained.
      - MATH 1013: Algebraic Concepts was added.
      - MATH 1103: Quantitative Skill and Reasoning was added.
      - MATH 1111: College Algebra was added.
  - Revisions of co-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a co-req.
      - PHAR 1010: Pharmacy Technology Fundamentals was added.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1040: Pharmacology was added.
  - Contact and Credit hours remained as is.
  - Revisions of competencies and learning outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Convert a doctor's order containing units of <b>measurement (i.e. units, milliequivalents, etc.)</b>	Regulate how to regulate IV fluid rate.	Recognize and interpret systems for measuring time and temperature.
Demonstrate correct <b>administration calculation</b> of oral medication <b>doses.</b>		
Demonstrate correct <b>administrations calculation</b> of parenteral medication <b>doses.</b>		
Use the "6 Rights" to administer all medications: 1. Right patients 2. Right drug 3. Right dosage 4. Right time 5. Right route <b>and form</b> 6. Right documentation.		

<del>Compute</del> Calculate correct dosages from doctor orders (i.e. oral solid doses, oral liquid doses, parenteral doses, etc.)		
State the correct dosages using Young's <del>Fried's</del> , and/or Clark's Rule.		
Calculate I.V. <del>fluid rate-</del> administration flow rates.		
<del>Dilute</del> Calculate fluids to proper strength using pure drug or stronger solution to weaker solution.		
Identify drug calculation (i.e. body weight, BSA, etc).		
Interpret drug orders for therapeutic appropriateness.		

PHAR 1010: Pharmacy Technology Fundamentals

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a pre-req. Additionally, programs can require students to take one of the provided MATH courses to earn credit for the Pharmacy Technology program's MATH requirement.
      - Program Admission was added.
      - MATH 1012: Foundations of Mathematics was added.
      - MATH 1013: Algebraic Concepts was added.
      - MATH 1103: Quantitative Skill and Reasoning was added.
      - MATH 1111: College Algebra was added.
  - Revisions of co-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a co-req.
      - PHAR 1000: Pharmaceutical Calculations was added.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1040: Pharmacology was added.
  - Contact and Credit hours remained as is.

- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
<del>Describe</del> <b>Demonstrate</b> how to provide personal and environmental protection.	Explain how to provide security in the work environment.	Demonstrate error prevention strategies (ordering, Tall Man lettering, separating inventory, barcoding, abbreviations, and leading/trailing zeros).
Explain how to <b>be aware of provide</b> security and <b>safety procedures</b> in the work environment.	Describe job settings.	Discuss Risk Evaluation and Mitigation Strategies and restricted drug management programs.
State all of the <del>technologist's</del> <b>technician's</b> primary job responsibilities, the duties falling under each, and how these differ from the primary responsibilities of the pharmacist.	Describe the pharmacy technology field.	Assess prescription errors (abnormal doses, early refill, incorrect quantity, incorrect patient, or drug).
Explain the relationship of <del>technologists</del> <b>technicians</b> to pharmacists, hospital staff, and patients.	Describe the career ladder.	Identify traditional and non-traditional pharmacy modalities.
<b>Recognize and appreciate</b> the benefits of active involvement in local, state, and national pharmacy organizations.	Display a caring attitude towards patients.	Discuss the roles and opportunities for growth of a pharmacy technician based on the practice setting.
State the general requirements of any local, state, or federal laws that specifically affect any of the <del>technologist's</del> <b>technician's</b> responsibilities.	Explain the differences of solids, liquids, and gases.	Demonstrate the ability to communicate orally and in writing.
Explain the legal aspects of a <del>technologist's</del> <b>technician's</b> functions, such as accountability, pharmacy regulations, and the use and storage of controlled substances.	Discuss the laws of conservation of energy and mass.	Understand the need to adapt pharmacy services for the culturally diverse.
Define <del>pharmaceutical-medical</del> <b>pharmacy and medical</b> terminology.	Explain and demonstrate the differences between ionic and covalent bonds.	Name the regulatory agencies and professional organizations that develop standards

		and/or guidelines for the field of pharmacy.
	Demonstrate and explain basic molecular formulas.	Introduce pharmaceutical and therapeutic concepts and how drugs are organized by the anatomy system.
	Demonstrate and explain formulas for common acids, bases, and salts relating to pharmacy practice.	Discuss the meaning of common pharmacological concepts.
	Explain the ph scale and demonstrate by using different common substances to test ph.	
	State at least three reasons for keeping patient information confidential.	
	Understand the need to adapt pharmacy services for the culturally diverse.	
	Demonstrate the ability to communicate orally and in writing.	
	Define in lay terms the names of all the clinical, diagnostic, and treatment units and services in the institution.	

PHAR 1020: Principles of Dispensing Medications

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a pre-req. Additionally, programs can require students to take one of the provided MATH courses to earn credit for the Pharmacy Technology program's MATH requirement.
      - Program Admission was added.
      - MATH 1012: Foundations of Mathematics was added.
      - MATH 1013: Algebraic Concepts was added.

- MATH 1103: Quantitative Skill and Reasoning was added.
- MATH 1111: College Algebra was added.
- PHAR 1000: Pharmaceutical Calculations remained.
- PHAR 1010: Pharmacy Technology Fundamentals remained.
- PHAR 1040: Pharmacology was added.
- Revisions of co-requisites
  - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a co-req.
    - PHAR 1000: Pharmaceutical Calculations was added.
    - PHAR 1010: Pharmacy Technology Fundamentals was added.
    - PHAR 1030: Principles of Sterile Medication Preparation was added.
    - PHAR 1040: Pharmacology was added.
    - PHAR 1050: Pharmacy Technology ~~Practicum~~ Clinical was added.
    - PHAR 1055: Pharmacy Assistant ~~Practicum~~ Clinical was added.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
List the steps in manufacturing and packaging operation that must be performed by a pharmacist <del>only</del> and pharmacy technicians.		Discuss storage and inventory control.
Interpret and complete <del>inpatient</del> profiles and the necessary records and documents associated with dispensed prescriptions for <del>ambulatory</del> patients.		Demonstrate the proper compounding techniques of various medication forms (i.e. specific to ointments, suspensions, creams, capsules and suppositories) using the proper equipment.
<del>Complete</del> Describe the receiving report.		
<del>Add</del> Discuss the items <del>to</del> in the inventory.		
List the steps in manufacturing and packaging operation that must be performed by a pharmacist <del>only</del> and pharmacy technicians.		
Describe packaging <del>considerations</del> options for various medications		

(e.g., drug containers and closures).		
Perform control and recordkeeping procedures (e.g., formula master sheets, worksheets and batch records, labeling and label control, quality control measures, and product testing and monitoring). <del>Discuss storage and inventory control.</del>		
Describe lot numbers and expiration dates <del>and times.—</del>		
<del>Interpret</del> Describe the institution's organizational chart <del>in terms of the name and title of the administrative person to whom the director of pharmacy reports and the administrative</del> and professional relationship of the pharmacy department to any other departments in the institution.		

PHAR 1030: Principles of Sterile Medication Preparation

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a pre-req.
      - PHAR 1000: Pharmaceutical Calculations remained.
      - PHAR 1010: Pharmacy Technology Fundamentals remained.
      - PHAR 1020: Principles of Dispensing was added.
      - PHAR 1040: Pharmacology was added.
      - PHAR 1050: Pharmacy Technology ~~Practicum~~ Clinical was added.
      - PHAR 1055: Pharmacy Assistant ~~Practicum~~ Clinical was added.
  - Revisions of co-requisites
    - Contingent to each college's programmatic admission requirements & program layout, programs may select one or more of the provided courses as a co-req.



- PHAR 1020: Principles of Dispensing was added.
- PHAR 1040: Pharmacology was added.
- PHAR 1050: Pharmacy Technology ~~Practicum~~ Clinical was added.
- PHAR 1055: Pharmacy Assistant ~~Practicum~~ Clinical was added.
- PHAR 2060: Advanced Pharmacy Technology Principles was added.
- PHAR 2070: Advanced Pharmacy Technology ~~Practicum~~ Clinical was added.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Discuss the <del>correct</del> use of a syringe and needle for aseptic withdrawal of the contents of a rubber-capped vial and a glass ampoule.	Discuss parenteral routes of administration.	Discuss IV hood cleaning.
Describe <del>and discuss</del> the <del>proper occasions when</del> hand washing <del>is required</del> technique.	Discuss and describe the local administration of eye medications.	Describe ISO classification.
List preparations that <del>may require be</del> heat-sterilized-sterilization.		Describe risk levels and BUDs.
Describe the equipment and systems used in parenteral administration (i.e. tubing, IV pumps).		Describe aseptic techniques media fill testing and glove testing (I.e., demonstrate proper handwashing, IV hood cleaning, degarbing, primary and secondary engineering controls.
Describe the equipment <del>and procedures</del> used to prepare parenteral admixtures.		Discuss the functions of the major components of a laminar-flow hood.
Discuss types of IV fluids and their uses (i.e. solutes and solvents).		Demonstrate the correct and proper technique of aseptic withdrawal of contents from a rubber-capped vial and a glass ampule.
Discuss pharmaceutical solutes. <del>and basic solution theory.</del>		Demonstrate proper handwashing technique.
Discuss sterilization vs disinfection and the difference between heat		Demonstrate the correct and proper technique for the

and " <del>cold</del> " cold sterilization.		aseptic reconstitution of an antibiotic.
Discuss the <del>proper technique for using a correct use</del> of syringe and needle for aseptic withdrawal of the contents of a rubber-capped vial and a glass ampoule to prevent contamination (i.e. <del>knowing the syringe and needle components</del> ).		Demonstrate the proper use of equipment used in the preparation of parenteral admixtures.
Discuss <del>storage requirements for drugs and chemicals to prevent contamination</del> proper storage of medications (i.e. temperature ranges, light sensitivity, restricted access).		Demonstrate the proper selection and preparation of containers and closures for parenteral admixtures.
		Demonstrate the proper selection and correct amount of each parenteral admixture ingredient.
		Demonstrate the correct procedure for mixing and preparing parenteral admixture.
		Perform correct selection, assembly, cleaning, usage and storage of necessary equipment.
		Demonstrate the correct techniques and procedures for preparing at least three hyperalimentation admixtures, including proper label preparation and appropriate recordings and storage requirements.
		Perform the proper preparation of cytotoxic agents and admixtures.
		Demonstrate the proper handwashing techniques and

		methods of cleaning various work surfaces and equipment (i.e. clean room counters, IV hood, and etc.)
		Demonstrate the proper and correct technique of aseptic withdrawal of contents from a rubber-capped vial and a glass ampule to prevent contamination (i.e. knowing the syringe and needle components).
		Demonstrate the proper technique for aseptic reconstitution of an antibiotic injection to prevent contamination.

PHAR 1040: Pharmacology

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a pre-req. Additionally, programs can require students to take one of the provided MATH courses to earn credit for the Pharmacy Technology program's MATH requirement.
      - Program Admission remained.
      - MATH 1012: Foundations of Mathematics was added.
      - MATH 1013: Algebraic Concepts was added.
      - MATH 1103: Quantitative Skill and Reasoning was added.
      - MATH 1111: College Algebra was added.
      - PHAR 1000: Pharmaceutical Calculations was added.
      - PHAR 1010: Pharmacy Technology Fundamentals was added.
      - PHAR 1020: Principles of Dispensing was added
  - Revisions of co-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a co-req.

- PHAR 1000: Pharmaceutical Calculations was added.
- PHAR 1010: Pharmacy Technology Fundamentals was added.
- PHAR 1020: Principles of Dispensing Medication was added.
- PHAR 1030: Principles of Sterile Medication Preparation was added.
- PHAR 1050: Pharmacy Technology ~~Practicum~~ **Clinical** was added.
- PHAR 1055: Pharmacy Assistant ~~Practicum~~ **Clinical** was added.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Describe the <del>F.D.A.</del> <b>FDA</b> reporting system for adverse drug RXNs, and how to initiate an adverse drug RXN report.		
Know the uses, mechanism of action, and side effects of the following therapeutic classifications and give examples of drugs in each:  - Anti-infectives and drugs for the common cold - Narcotic pain relievers and other nervous system drugs - Respiratory, GI, renal, and cardiac drugs - Non-narcotic analgesics, muscle relaxants, hormones, and topicals - Chemotherapy - <b>Complementary and alternative therapy</b> , herbs, and miscellaneous drugs - <b>Nutrition, Fluids and Electrolytes</b>		

PHAR 1050: Pharmacy Technology ~~Practicum~~ **Clinical**

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites

- Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a pre-req.
      - PHAR 1000: Pharmaceutical Calculations remained.
      - PHAR 1010: Pharmacy Technology Fundamentals remained.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1030: Principles of Sterile Preparation was added.
      - PHAR 1040: Pharmacology was added.
  - Revisions of co-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a co-req.
      - PHAR 1000: Pharmaceutical Calculations was added.
      - PHAR 1010: Pharmacy Technology Fundamentals was added.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1030: Principles of Sterile Medication Preparation was added.
      - PHAR 1040: Pharmacology was added.
      - PHAR 2060: Advanced Pharmacy Technology Principles was added.
      - PHAR 2070: Advanced Pharmacy Technology ~~Practicum~~ **Clinical** was added.
  - Contact and Credit hours remained as is.
  - Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Follow storage requirements <del>for all classification of drugs of medications (e.g. temperature ranges, light sensitivity, restricted access).</del>	Use compounding equipment.	Properly use, clean and store equipment used in compounding.
Follow storage requirements of floor stock <del>and controlled drugs in the pharmacy and on nursing units through a floor check inspection.</del>	Clean equipment used in compounding.	Mix and prepare the product for RPh verification.
Store caustic, poisonous, and flammable substances <del>safely.</del>	Store equipment used in compounding.	Process, handle and demonstrate administration techniques and document administration of immunizations and

		other injectable medications.
Prepare required dispensing documentation for controlled drugs, investigational drugs, and nonprescription drugs ( <del>behind the counter</del> ).	Mix product.	Identify the 3 main types of communication (verbal, nonverbal, and written) and skills to support communication efficacy.
Identify those items a <del>technologist</del> pharmacy technician cannot document.	Prepare product.	Determine strategies to resolve conflict.
Inspect nursing-unit drug supplies, including various automated functions such as <del>stock outs</del> out-of-stocks, expired drugs, or replenishment.	Use proper knowledge of aseptic technique to assist the pharmacist in administration of immunizations.	
Prepare medications for <del>various</del> automated systems.	Fill cassettes used for epidural and other parenteral admixture administration via pump.	
Complete <del>worksheet</del> compounding log including record of weights and volumes, and manufacturer's lot numbers.	Use the pump set.	
Demonstrate the proper use of syringes and needles to withdraw contents of rubber-capped vials and glass <del>ampoules</del> ampules.	Demonstrate situations for use of various filter types.	
Demonstrate proper filtering techniques in product preparation other than intravenous ( <del>i.e.</del> ophthalmic preparations).	Choose appropriate filter.	
Perform tasks that demonstrate sterility, heat sterilization, and <del>"cold"</del> cold sterilization.	Follow correct verbal face-to-face communication as well as correct telephone communication techniques to be used when receiving	

	and initiating calls.	
Deliver medications to the Pyxis or other automated dispensing systems.	Establish the ability to resolve conflicts through negotiation.	
State legal aspects of <del>technologist</del> pharmacy technician functions, such as accountability, pharmacy regulations, and use & storage of controlled substances.		
<del>Demonstrate the ability to participate</del> Identify ways of participating in the pharmacy's quality control and medication error prevention plan.		
State <del>at least three</del> reasons for patient information confidentiality.		
<del>Appraise</del> Review prescriptions/medication orders for completeness, accuracy, and authenticity.		

*PHAR 1055: Pharmacy Assistant ~~Practicum~~ Clinical*

- With the creation of a 202212 version, the following revisions were made,
  - Course description was revised.
  - Revisions of pre-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a pre-req.
      - ALHS 1011: Structure and Function of the Human Body was removed.
      - ALHS 1090: Medical Terminology was removed.
      - MATH 1012: Foundations of Mathematics was removed.
      - PHAR 1000: Pharmaceutical Calculations remained.
      - PHAR 1010: Pharmacy Technology Fundamentals remained.
      - PHAR 1020: Principles of Dispensing Medications remained.
      - PHAR 1030: Principles of Sterile Preparation was added.
      - PHAR 1040: Pharmacology remained.
  - Revisions of co-requisites

- Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a co-req.
    - PHAR 1000: Pharmaceutical Calculations was added.
    - PHAR 1010: Pharmacy Technology Fundamentals was added.
    - PHAR 1020: Principles of Dispensing Medication was added.
    - PHAR 1030: Principles of Sterile Medication Preparation was added.
    - PHAR 1040: Pharmacology was added.
    - PHAR 2060: Advanced Pharmacy Technology Principles was added.
    - PHAR 2070: Advanced Pharmacy Technology ~~Practicum~~ Clinical was added.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
<del>List</del> Identify the steps in manufacturing and packaging operations that must be performed by a pharmacist only.	Prepare a written report of a physical inventory.	Demonstrate accurate selection, assembly, usage, cleaning, and storing of necessary equipment used within the compounding process.
Demonstrate the proper completion of <del>worksheet record</del> compounding log of weights and volumes, manufacturer's lot numbers, and other required information for pharmacy compounding.	Describe pharmaceutical solutes, solvents, and basic solution theory.	Discuss proper storing, cleaning and maintenance of equipment.
Explain the need to follow pharmacy policy and regulations.	Complete all necessary control records for unit doses prepared from a bulk supply.	Check-in and complete the receiving report of a drug shipment by using the invoice and the purchase order.
State the institutional and departmental policies applicable to <del>each-of</del> the primary job responsibilities and describe the procedures for <del>each</del> various pharmacy settings.	Select necessary equipment.	Demonstrate reconciling items to the pharmacy inventory.
Explain the relationship of <del>technologists</del> pharmacy technicians to pharmacists, hospital	Assemble and use equipment.	Discuss and explain basic storage requirements and drug stability (e.g., effect of



staff, and patients.		heat, cold, light, and moisture on drugs and chemicals).
Prepare a <del>written report</del> computerized report of a <del>physical inventory of a representative stock of</del> the pharmacy inventory that will include pharmacy drugs and supplies. <del>prepared forms and records.</del>	Clean and store equipment.	Demonstrate the correct selection, proper assembly, usage, cleaning and storing of equipment for formulation and packing.
Document <del>cart fill/check</del> the process of a cart fill and its completion.	Select each ingredient.	
Explain the use of computers for filing <del>pharmacy</del> information.	Demonstrate proper quarantine procedure.	
<del>Designate from a list of 50</del> Identify drugs <del>names</del> those that are light sensitive and <del>those drugs</del> that must be refrigerated.	Demonstrate the traditional system.	
List <del>the titles of at least four</del> reference books where stability information on drug compounds can be located.	Demonstrate the traditional UD system.	
Discuss pharmaceutical solutes <del>and solvents.</del> <del>and basic solution theory.</del>	Maintain equipment and apparatus.	
Repackage and label <del>25</del> unit doses from a bulk supply of drugs and correctly complete all necessary <del>control records</del> compounding logs.	Discuss storing and cleaning of equipment.	
Demonstrate <del>proper</del> correct selection of each ingredient for formulation and packaging.	Complete the records for prepared/compounded products with lot numbers and expiration dates and times.	
<del>List</del> Identify the steps in manufacturing and packaging operation that must be performed by a pharmacist only.	Check in a drug shipment by using the packing list or invoice and purchase order.	

List the possibilities for contamination of an injectable solution during <del>its</del> preparation and the <del>for each possibility</del> a precautions that would to prevent the contamination.	Complete the receiving report.	
Demonstrate the use of a syringe and needle for aseptic withdrawal <del>of the contents of a rubber-capped</del> from a vial and a glass ampoule.	Add the items to the inventory.	
Demonstrate the technique and procedures for preparing parental admixtures, including label preparation, and <del>control records</del> compounding log completion.	Retrieve designated drug items from the drug storeroom.	
Demonstrate proper selection and <del>preparation technique</del> of packages/containers and closures. <del>for formulation and packaging.</del>	Discuss considerations regarding pharmacy equipment operation, control of microbiological contamination, cleaning and housekeeping, and control records.	
List types of drug packages and containers (e.g., multiple dose, single dose, <del>treatment size</del> , large-volume parental containers, small volume parental containers, aerosols and sprays, tubes, droppers, etc.)	Discuss basic principles of stability (e.g., effect of heat, cold, light, and moisture on drugs and chemicals.)	
Demonstrate <del>proper cleaning and housekeeping to minimize contamination.</del>	Explain storage requirements for drugs and chemicals.	
Discuss the <del>control prevention</del> of <del>microbiological microbial</del> contamination.	Demonstrate the correct selection of necessary equipment for formulation and packaging.	
Discuss the proper <del>quarantine</del> procedure for selected formulation and	Demonstrate proper assembly and use of the equipment for	

packaging request.	formulation and packaging.	
Perform control and record keeping procedures (e.g., formula master sheets, worksheets and batch records, labeling and label control, quarantine, and product testing and monitoring.)	Demonstrate proper cleaning and storing of equipment for formulation and packaging.	
Describe the organization, functions, and responsibilities of the community and hospital pharmacies. <del>hospital and pharmacy.</del>	Demonstrate the proper quarantine procedure for formulation and packaging.	
	Demonstrate the proper technique for formulation and packaging.	
	List possibilities for contamination of an injectable solution during preparation.	
	Discuss precautions to take to prevent contamination.	
	Use a syringe and needle for aseptic withdrawal of the contents of a rubber-capped vial and a glass ampoule.	
	Monitor contamination.	

*PHAR 2060: Advanced Pharmacy Technology Principles*

- With the creation of a 202212 version, the following revisions were made,
  - Revisions of pre-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a pre-req.
      - COMP 1000: Introduction to Computer Literacy was removed.
      - PHAR 1000: Pharmaceutical Calculations was added.
      - PHAR 1010: Pharmacy Technology Fundamentals was added.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1030: Principles of Sterile Preparation remained.

- PHAR 1040: Pharmacology was added.
- PHAR 1050: Pharmacy Technology ~~Practicum~~ Clinical remained.
- PHAR 1055: Pharmacy Assistant ~~Practicum~~ Clinical was added.
- Revisions of co-requisites
  - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a co-req.
    - PHAR 1030: Principles of Sterile Medication Preparation was added.
    - PHAR 1050: Pharmacy Technology ~~Practicum~~ Clinical was removed.
    - PHAR 2070: Advanced Pharmacy Technology ~~Practicum~~ Clinical remained.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Discuss the technician's role in the health care team, how to function efficiently, and provide safe and effective treatment <del>or</del> for the patient.	Determine /wholesaler, just-in-time (JIT) or prime vendor purchasing usage.	Differentiate between the types of purchasing vendors available.
<del>Display</del> Demonstrate the ability to assist the pharmacist in collecting, organizing, and evaluating information for direct patient care, medication use review, medication reconciliation, <del>and</del> departmental management and medication therapy management.	Review and calculate the following concerning dispensing: oral, parenteral, IV drip rates, other routes; review safety issues.	Review and calculate the proper dosing for oral, parenteral, IV drip rates, and special populations.
Summarize List and explain the pharmacy laws that pertain to maintaining computerized <del>computer maintained</del> records and patient profiles.	Review dosage computation, children's dosage, and IV solutions.	List the uses, mechanisms of action, side effects, generic names, usual dosage, and classification/category of drug usage for the most commonly prescribed drugs.
Describe the current laws and limitations on the use of <del>fax machines</del> pharmacy processing technology. <del>in pharmacy practice.</del>		

Discuss the legal requirements for prescription filling, filing, documentation, <del>order taking, and routine procedures</del> and other required procedures.		
<del>Discuss</del> Demonstrate the legal requirements for proper prescription documentation.		
Demonstrate <del>/State the purchasing and inventory control process by using a database management system (DBMS). usage in purchasing and inventory control.</del>		
<del>Describe or</del> Differentiate between durable and non-durable <del>medical</del> supplies.		

*PHAR 2070: Advanced Pharmacy Technology ~~Practicum Clinical~~*

- With the creation of a 202212 version, the following revisions were made,
  - Revisions of pre-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a pre-req.
      - COMP 1000: Introduction to Computer Literacy was removed.
      - PHAR 1000: Pharmaceutical Calculations was added.
      - PHAR 1010: Pharmacy Technology Fundamentals was added.
      - PHAR 1020: Principles of Dispensing Medications was added.
      - PHAR 1030: Principles of Sterile Preparation remained.
      - PHAR 1040: Pharmacology was added.
      - PHAR 1050: Pharmacy Technology ~~Practicum Clinical~~ remained.
      - PHAR 1055: Pharmacy Assistant ~~Practicum Clinical~~ was added.
  - Revisions of co-requisites
    - Contingent to the programmatic admission requirements & program layout determined by each college, programs may select one or more of the provided courses as a co-req.
      - PHAR 1030: Principles of Sterile Medication Preparation was added.
      - PHAR 1050: Pharmacy Technology ~~Practicum Clinical~~ remained.
      - PHAR 1055: Pharmacy Assistant ~~Practicum Clinical~~ was added.

- PHAR 2060: Advanced Pharmacy Principles remained.
- Contact and Credit hours remained as is.
- Revised Competencies & Learning Outcomes

Revised Learning Outcome	Deleted Learning Outcome	Added Learning Outcome
Demonstrate the proper <del>Package packaging and label labeling of all</del> medications per pharmacy guidelines.	Prepare inpatient nonparenteral medication order or prescription.	Prepare parenteral or non-parenteral medication orders and/or prescriptions.
Transcribe <del>any number of</del> medication orders and/or prescriptions accurately.	Prepare inpatient parenteral medication order or prescription.	Demonstrate the process of interpreting medication orders and/or prescriptions accurately from pharmacy abbreviations to English equivalents.
Describe the requirements <del>any</del> a pharmacy must meet to order controlled substances.	Translate any common Latin abbreviations used in a pharmacy to English equivalents.	List advantages and disadvantages of controlled substances reports of automated systems.
Describe the procedures used to order <del>a</del> schedule II-V controlled substances. <del>and a schedule III-V controlled substance.</del>	Order controlled substances.	Describe and discuss the risks associated with parenteral preparations.
Describe recordkeeping requirements for controlled substances.	Give advantages and disadvantages of the single sheet/modified sheet system, the schedule sheet system, the special issue sheet system, and the Pyxis/Documed systems.	Demonstrate the proper packaging for transporting and storing prepared and unprepared cytotoxic drug products.
Differentiate between the nursing and pharmacy procedures involving the return of partial and unopened doses (i.e. waste reports).	Differentiate between small scale and large scale controlled substance destruction.	Identify forms of communication and skills to support communication efficacy.
Demonstrate the proper techniques to prepare, handle, label, and store <del>in handling, labeling, and storing</del> TPN products.	Demonstrate proper packaging for transport of cytotoxic drug products.	Display positive communication skills while assisting pharmacy customers.
Demonstrate <del>and demonstrate</del> the various pieces of available required protective	Demonstrate the proper storage for prepared and unprepared	Explain and complete third party payment forms.

equipment <del>used</del> for handling cytotoxic agents.	cytotoxic drug products.	
Demonstrate the preparation of <del>not less than three</del> cytotoxic drug products.	Demonstrate the local administration of ophthalmic medications in various dosage forms (e.g., solutions, suspensions, and ointments).	Display error prevention strategies (e.g. prescription or medication order to the correct patient).
Compare manipulations required in computerized and manual patient profiles ( <del>emergency vs. routine orders</del> ).	Escort another person to any department or unit.	
Demonstrate the use of <del>FAX machines</del> technology to send and receive data.	Follow verbal face-to-face communication as well as correct telephone communication techniques to be used when receiving and initiating calls.	
Demonstrate <del>at least six</del> different uses of computer systems in modern pharmacy.	Communicate face-to-face with customers and exhibit good public relations.	
Demonstrate the <del>preparation proper sterile technique</del> of an ophthalmic preparation <del>using sterile technique</del> (e.g. solutions, suspensions, and ointments).	Explain third party payment forms.	
<del>Illustrate and interpret</del> Discuss the institution's organizational chart considering the responsibilities of the pharmacy director and the Pharmacy Department personnel.	Complete third party payment forms.	
State <del>at least three</del> reasons for patient information confidentiality.	Transfer the correct prescription to the correct patient.	
<del>Report at least five</del> Identify the potential reasons for initiation of <del>a</del> disciplinary actions in the institution (e.g.,	Explain inventory control/ordering techniques and the required recordkeeping.	

absenteeism, tardiness, incompetency, dishonesty, etc.).		
<del>Cite at least 10</del> Provide examples of "a decision requiring a pharmacist's judgment."		
State legal aspects of <del>technologist</del> the pharmacy technician's functions, such as accountability, pharmacy regulations, and use and storage of controlled substances.		
List transcription techniques, abbreviations, and symbols used to <del>effect</del> <del>order transcription</del> interpret medication orders/prescriptions.		
Promote legal requirements of <del>technologists</del> pharmacy technicians in relation to duties performed/responsibilities carried out.		

The revisions required the creation of the 2022 versions for the PHAR course standards. The version of each program standard remained as is. Additionally, the credit and contact hours for each program remained as is. The PA71: Pharmacy Technology Certificate program remained at 18 credit hours, and the PB71: Pharmacy Technology Certificate program remained at 35hrs. The PT22: Pharmacy Technology diploma program remained at 56 credit hours, and the PT23: Pharmacy Technology degree credit hours remained at 65hrs.