



Program of Study Guide: **Pharmacy Technician**

Comprehensive guidelines and course standards
for the Pharmacy Technician

Office of College and Career Pathways

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MARYLAND STATE DEPARTMENT OF EDUCATION

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Purpose

The purpose of this document is to communicate the required Career and Technical Education (CTE) academic standards for the Pharmacy Technician Program of Study. The academic standards in this document are theoretical and performance based. The standards contain content from multiple state departments of education, Maryland Board of Pharmacy, Pharmacy Technician Certification Board (PTCB) Certified Pharmacy Technician (CPhT), and have been reviewed and vetted by members of the Maryland business and industry community.

In addition to academic standards, the Maryland State Department of Education (MSDE) has incorporated into this document Labor Market Information (LMI) definitions and explanations for the Program of Study; program aligned Industry Recognized Credentials; and Work-Based Learning resources and requirements by course level.

This document is intended for use by educational administrators and practitioners. A similar document is available for each state-approved CTE Program of Study.

Standards Sources

Pharmacy Technician standards are based on various research-backed sources, best practices, and national frameworks that guide effective K-12 education. The following sources provide a rigorous foundation for the Pharmacy Technician standards, ensuring they are well-rounded, research-driven, and aligned with national expectations and young learners' unique needs.

Here are the primary sources that these standards draw from:

1. **Maryland Board of Pharmacy Technician Training Program Standards**
 - A. **Description:** The Maryland Board of Pharmacy sets forth regulations for pharmacy technician training programs, mandating a minimum of 160 hours of work experience to be completed within six months of enrollment.
 - B. **Usage:** These standards ensure that Pharmacy Technician I and II courses comply with state requirements and provide students with the necessary training and experience for registration.
 - C. **Source:** Maryland Department of Health - Board of Pharmacy
2. **Pharmacy Technician Certification Board (PTCB) Certified Pharmacy Technician (CPhT) Program**
 - A. **Description:** The PTCB offers the CPhT credential, requiring candidates to complete a PTCB-recognized education/training program or have equivalent work experience, and pass the Pharmacy Technician Certification Exam (PTCE).
 - B. **Usage:** Pharmacy Technician II courses align with PTCB standards to prepare students for national certification, enhancing their qualifications and employment prospects.
 - C. **Source:** [PTCB - Certified Pharmacy Technician \(CPhT\)](#)
3. **Advance CTE Education Career Cluster Framework: Health and Human Services**
 - A. **Description:** The Advance CTE Education Career Cluster Framework defines the knowledge and skills necessary for success in the Health and Human Services Cluster, promoting health, wellness, and resilience in individuals and communities.
 - B. **Usage:** The framework provides a foundation for aligning the Pharmacy Technician program to broaden healthcare career pathways and industry expectations.
 - C. **Source:** Advance CTE Career Clusters.
4. **National Healthcareer Association (NHA) Standards for Certified Pharmacy Technician (CPhT) Certification**
 - A. **Description:** The NHA establishes provides the ExCPT exam, leading to the CPhT certification, with eligibility criteria including completion of a pharmacy technician training program or relevant work experience.
 - B. **Usage:** Pharmacy Technician II courses may incorporate NHA standards to prepare students for the ExCPT exam, offering an alternative pathway to national certification.
 - C. **Source:** [NHA - Certified Pharmacy Technician \(CPhT\)](#)
5. **ASHP/ACPE Accreditation Standards for Pharmacy Technician Education and Training Programs**
 - A. **Description:** The American Society of Health-System Pharmacists (ASHP) and the Accreditation Council for Pharmacy Education (ACPE) provide accreditation standards defining competencies for entry-level and advanced-level pharmacy technician education.

- B. **Usage:** Pharmacy Technician programs align their curricula with these standards to ensure comprehensive education and training, preparing students for various pharmacy settings.
 - C. **Source:** [ASHP - Accreditation Standards](#)
6. **Code of Maryland Regulations (COMAR) 10.34.34 - Pharmacy Technicians**
- A. **Description:** COMAR 10.34.34 outlines the regulations governing pharmacy technicians in Maryland, including training program standards, examination requirements, and registration processes.
 - B. **Usage:** All Pharmacy Technician courses incorporate these regulations to ensure compliance with state laws and to adequately prepare students for certification and practice.
 - C. **Source:** [COMAR 10.34.34 - Pharmacy Technicians](#)

Supporting Standards Sources

7. **Next Generation Science Standards (NGSS)**
- A. **Description:** The NGSS establishes rigorous science education benchmarks, focusing on scientific inquiry, systems thinking, and the application of science concepts in real-world contexts.
 - B. **Usage:** These standards support the integration of anatomy, physiology, and pathophysiology content in the Pharmacy Technician Courses to align with science education requirements.
 - C. **Source:** [Next Generation Science Standards](#)
8. **American Heart Association First Aid and CPR Certification Standards**
- A. **Description:** The American Heart Association (AHA) provides guidelines and certifications for First Aid, CPR, and Basic Life Support, which are widely recognized in healthcare and education.
 - B. **Usage:** AHA standards are integrated into the Pharmacy Technician curriculum, requiring students to obtain First Aid certification to enhance patient safety and emergency care skills.
 - C. **Source:** [American Heart Association First Aid Certification](#)

Course Descriptions

Course Level	Course Information	Description
Required Core: Course 1	Pharmacy Technician I SCED: Pending Grades: 9-12 Prerequisite: None Credit: 1	Pharmacy Technician I course introduces students to the foundational knowledge and skills required to pursue a career in healthcare as a Pharmacy Technician. Students will gain an understanding of healthcare systems, patient care practices, medical terminology, and safety protocols. Through classroom and simulated pharmacy lab practice, students learn medication safety principles, prescription parts and SIG codes, dosage forms and routes, pharmacy law and ethics (including HIPAA), introductory pharmaceutical calculations and conversions, inventory basics, insurance/billing fundamentals, and pharmacy information systems. Students are oriented to Maryland Board of Pharmacy technician requirements and the medication-use system across community, health-system, and specialty settings. This course prepares students to progress into the Pharmacy Technician II course, where they will complete the requirements for the Maryland Board of Pharmacy Certified Pharmacy Technician (CPhT) credential.

Course Level	Course Information	Description
Required Core: Course 2	Pharmacy Technician II SCED: Pending Grades: 10-12 Prerequisite: Pharmacy Technician I Credit: 1	Pharmacy Technician II course builds upon the foundational skills from the Pharmacy Technician I course, preparing students for advanced roles in pharmacy practice. This course provides an in-depth focus on preparing for national certification, developing technical and professional skills, and applying knowledge in real-world pharmacy settings. Students will engage in comprehensive training that includes advanced pharmacological concepts, sterile and non-sterile compounding techniques, accurate prescription processing, and inventory management. By the end of this course, students will demonstrate the competencies required to successfully pass a Board-approved pharmacy technician certification examination, such as the Certified Pharmacy Technician (CPhT) exam, and meet the Maryland Board of Pharmacy registration requirements. Graduates of this course will be well-equipped for entry-level positions in a variety of pharmacy environments, including retail, hospital, and specialty pharmacies.
Optional Flex: Course 1	Pharmacy Technician III SCED: Pending Grades: 11-12 Prerequisite: Pharmacy Technician I and II Credit: 1	extends pharmacy practice into advanced compounding and quality systems; health-system workflows (unit dose, cart fill, IV room batching, TPN label math); automation and informatics (ADC restock, discrepancy resolution, inventory analytics); medication safety and regulatory compliance (USP <797>/<800>, DEA, Board documentation); specialty/REMS workflows; and a capstone portfolio with mock audits. Delivery occurs in classroom/science lab simulations and (where available) supervised work-based learning aligned to national certification.

Course Level	Course Information	Description
Optional Flex: Course 2	Career Connected Learning I SCED: Pending Grades: 11-12 Prerequisite: See Course Description Credits: 1-3	Prerequisites: 1. Alignment to the student's 6-Year Plan 2. Completion of: a. Minimum two sequential courses in a CTE pathway, OR b. Minimum two years of the same world language; OR c. Minimum two sequential courses in a comprehensive arts program; OR d. Inclusion in the IEP/504 transition plan with supporting documentation (as required) 3. Endorsement from an educator, mentor, employer, or career coach 4. No more than one course recovery credit in core subjects is needed by the student. This flexible, work-based learning course introduces students to real-world applications of classroom knowledge and technical skills through on-the-job experiences and reflective practices. Students engage in career exploration, skill development, and professional networking by participating in youth apprenticeships, registered apprenticeships, pre-apprenticeships, internships, capstone projects, or other approved career-connected opportunities. Variable credit (1–3) accommodates the required on-the-job training hours and related instruction. By integrating industry standards, employability skills, and personalized learning goals, Career Connected Learning I equips students to make informed career decisions, develop a professional portfolio, and build a strong foundation for success in postsecondary education, training, or the workforce.

Course Level	Course Information	Description
Optional Flex: Course 3	Career Connected Learning II SCED: Pending Grades: 11-12 Prerequisite: Career Connected Learning I Credits: 1-3	Building on the foundational experiences of Career Connected Learning I, this advanced work-based learning course provides students with deeper on-the-job practice, leadership opportunities, and refined career exploration. Students continue to enhance their technical and professional skills, expanding their industry networks and aligning personal goals with evolving career interests. Variable credit (1–3) remains aligned with the required training hours and related instruction. Through elevated responsibilities and skill application, Career Connected Learning II prepares students to confidently transition into higher-level postsecondary programs, apprenticeships, or the workforce.

Dual Enrollment and Career Connected Learning Experiences Must be Aligned to the CTE Core.

Industry-Recognized Credentials and Career-Connected Learning

The *Blueprint for Maryland's Future* and the High School Level of a Registered Apprenticeship

The Maryland State Department of Education recognizes the high-school level of a Registered Apprenticeship (RA), defined as a State-approved Registered Apprenticeship begun during high school in which students complete at least 144 hours of related technical instruction and 250 hours of paid on-the-job training before graduation, with the remaining required apprenticeship hours completed post-graduation, as the gold standard of Career Connected Learning.

The CTE Committee of the Governor's Workforce Development Board, in alignment with federal apprenticeship standards, requires 144 hours of RTI for all high school RA participants, and the Apprenticeship Maryland Program (AMP) defines the minimum RTI as **one course credit equivalent**. This high-school-level Registered Apprenticeship is the preferred career-connected learning option for students to meet the Blueprint's goal that 45% of public high school graduates complete either the high-school level of a Registered Apprenticeship or another industry-recognized credential.

To the extent practicable, the greatest number of students should achieve this goal through participation in a high-school level Registered Apprenticeship, with schools ensuring these requirements are scheduled, completed, and documented for transcript and reporting purposes.

To the extent practicable, the greatest number of students should achieve this goal through the high-school level of a Registered Apprenticeship.

Career-Connected Learning Resources		
Course 1: Career Awareness	Course 2: Career Preparation	Flex Courses: Career-Connected Learning
- Industry Visits - Guest Speakers - Participation in Career and Technical Student Organizations - Postsecondary Visits – Program Specific Site Tours - Mock Interviews	- All of Career Awareness plus the following: - Job Shadow - Employer Mentoring	- Registered Apprenticeship - Internship - School-Based Enterprise - Employer-Directed Capstone

Industry-Recognized Credentials

By the end of Pharmacy Technician II: Certified Pharmacy Technician (CPhT, PTCB) or Certified Pharmacy Technician ExCPT (CPhT, NHA)

Optional Credentials (via the Flex Course options): Dual Credit Options, Apprenticeships, Internships

Per COMAR [10.34.34.05](#), there are three pathways the Maryland Board of Pharmacy (MDBOP) accepts for technician registration:

1. Board-approved training route (includes 160 hrs).
 - Complete a Board-approved technician training program (≤ 6 months) that includes 160 hours of work experience, pass a Board-approved exam, submit the application/fee, and complete the background check. (Program standards are in [COMAR 10.34.34.07](#).)
2. National certification route (no 160 hrs required).
 - Be currently certified by a national pharmacy technician certification program (e.g., PTCB or NHA/ExCPT), submit the application/fee, and complete the State Criminal History Records Check.
3. Legacy work-experience route (grandfathering).
 - If you don't meet #1 or #2, you may qualify by showing continuous employment in the pharmacy area since January 1, 2006 with written verification from the permit holder and supervising pharmacist, plus the application/fee and background check.

For reference, the Board's own application materials also distinguish nationally certified vs non-nationally certified applicants (the latter must show completion of a Board-approved program with 160 hours).

Labor Market Information: Definitions and Data

Labor market information (LMI) plays a crucial role in shaping Career and Technical Education (CTE) programs by providing insights into industry demands, employment trends, and skills gaps. This data helps education leaders assess the viability of existing programs and identify opportunities for new offerings. By aligning CTE programs with real-time labor market needs, schools can better prepare students for in-demand careers and ensure that resources are effectively utilized to support pathways that lead to high-quality, sustainable employment.

Standard Occupational Code (SOC) and Aligned Industry:

Indicator	Definition	Pathway Labor Market Data
High Wage¹	Those occupations that have a 25th percentile wage equal to or greater than the most recent MIT Living Wage Index for one adult in the state of Maryland, and/or leads to a position that pays at least the median hourly or annual wage for the DC-VA-MD-WV Metropolitan Statistical Area (MSA). <i>Note: A 25th percentile hourly wage of \$24.74 or greater is required to meet this definition.</i>	Standard Occupational Code: 29-2052: Pharmacy Technicians in Maryland Hourly Wage/Annual Salary: 25 th Percentile: \$17.64 / \$36,691 50 th Percentile: \$20.72 / \$43,098 75 th Percentile: \$23.86 / \$49,629
High Skill	Those occupations located within the DC-VA-MD-WV Metropolitan Statistical Area (MSA) with the following education or training requirements: completion of an apprenticeship program; completion of an industry-recognized certification or credential; associate's degree, bachelor's degree, or higher.	Typical Entry-Level Education: High school diploma or equivalent
In-Demand	Annual growth plus replacement, across all Maryland occupations, is <u>405</u> openings between 2024-2029.	Annual Openings 870

Lightcast Data Updated August 2025

¹ Living Wage Calculator: <https://livingwage.mit.edu/states/24>

Labor Market Information Data Source

Lightcast occupation employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates are also affected by county-level Lightcast earnings by industry. Foundational data for the state of Maryland is collected and reported by the Maryland Department of Labor.

Methodology for High Wage Calculations

To combine labor market data across multiple Standard Occupational Classifications (SOCs), a weighted average approach was used to ensure accurate representation of the marketplace. Median wages for each SOC were weighted based on their respective employment levels, reflecting the relative demand for each occupation. This method ensures that occupations with higher employment contribute proportionately to the overall wage calculation. Additionally, job openings from all relevant SOCs were summed to determine the total projected demand. For example, if Mechanical Engineers account for 67% of total employment and Electrical Engineers for 33%, their respective wages are weighted accordingly, and job openings are aggregated to provide a comprehensive view of labor market opportunities. This approach delivers a balanced and accurate representation of both wages and employment demand for the program.

Methodology for In-Demand Calculations

The baseline for annual job openings, taking into account new positions and replacement positions, was determined by taking the average of all annual job openings between 2024 and 2029 across all 797 career sectors at the 5-digit SOC code level. For the 2024-2029 period, average job openings (growth + replacement) is 405.

Course Standards: Pharmacy Technician I

- 1. GENERAL REQUIREMENTS.** This course is recommended for students in Grades 9-12, and there are no prerequisites.

2. INTRODUCTION

- A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
- B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
- C. The Pharmacy Technician Program of Study equips high school students with the knowledge and skills needed for careers in pharmacy and healthcare. Through a sequence of courses, students learn healthcare systems, pharmacology, prescription processing, and patient care practices, with hands-on training in compounding, inventory management, and pharmacy technology. The program includes a minimum of 160 hours of work-based learning, internships, or apprenticeships in licensed pharmacy settings, meeting Maryland Board of Pharmacy requirements. Students are prepared to achieve national certification as Certified Pharmacy Technicians (CPhT) and transition into entry-level roles or advanced healthcare pathways.
- D. Pharmacy Technician I introduces students to the foundational knowledge and skills required for a pharmacy technician career. Topics include healthcare systems, medical terminology, patient care, safety protocols, and infection control. Emphasis is placed on professionalism, communication, and ethical decision-making, preparing students for progression into Pharmacy Technician II. This course prepares students to meet eligibility and content expectations for the PTCB PTCE or NHA ExCPT; students complete an application plan and domain-mapped study portfolio.
- E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
- F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a cocurricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.

3. KNOWLEDGE AND SKILLS

- A. The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:**
- 1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
 - 2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
 - 3. Employ effective reading, writing, and technical documentation skills.

4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
5. Demonstrate leadership skills and collaborate effectively as a team member.
6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflects skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate proficiency in using emerging and industry-standard technologies.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply English concepts such as writing informative texts when documenting procedures and articulating goals.
3. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions, and fraction and decimal conversions.

E. The student demonstrates introductory dispensing and nonsterile technical procedures (simulation). The student is expected to:

1. Accurately weigh and measure ingredients using balances and graduates in a classroom or science lab; achieve $\pm 2\%$ mass and $\pm 5\%$ volume accuracy across three consecutive trials.
2. Reconstitute simulated oral suspensions per written directions and produce labels with 100% of required elements (patient placeholder, drug name/strength, SIG, qty, BUD, initials, auxiliary labels).
3. Calculate quantity to dispense and days' supply from SIGs; achieve $\geq 90\%$ accuracy on mixed-item calculation sets.
4. Complete reconstitution and cleaning logs with no critical omissions (date, time, lot/exp placeholders, initials).
5. Match brand and generic names for a curated Top 50 community medications (teacher list); achieve $\geq 90\%$ on a timed matching assessment.

6. Produce a Top-50 SIG reference sheet (class artifact) and use it to decode 10 mixed prescriptions with 100% label-element accuracy.

F. The student demonstrates intake, customer service, and workflow support (simulation).

The student is expected to:

1. Conduct scripted and unscripted role-plays that verify two patient identifiers, capture allergies/insurance, and escalate clinical questions to the pharmacist role with zero critical HIPAA breaches.
2. Support OTC location requests by using a planogram and correctly categorizing at least 12 common OTCs; document pharmacist referral for red-flag symptoms using a standard template.
3. Differentiate pharmacy settings (community/chain/independent, mail-order, compounding, long-term care, hospital/health-system, nuclear, hospice, specialty, wholesaler/distributor) and describe two technician task differences for at least five settings.

G. The student demonstrates inventory receiving, storage, and handling procedures (simulation). The student is expected to:

1. Receive and store mock inventory using room/refrigerated/frozen requirements; maintain temperature logs within stated ranges for two weeks (no more than one minor deviation with corrective action).
2. Perform FEFO pulls and short-date checks; generate a daily pull list with 95% accuracy from a mixed shelf.

H. The student demonstrates third-party and point-of-sale fundamentals (simulation).

The student is expected to:

1. Complete paper or spreadsheet "claim" submissions, reversals, and coordination of benefits; resolve 3 of 3 common rejection types (ID mismatch, NDC not covered, refill too soon) using a decision tree.
2. Produce POS artifacts (receipt, leaflet, pharmacist-verification handoff form) with no missing signatures/initials.

I. The student demonstrates medication safety and quality practices (simulation).

The student is expected to:

1. Execute LASA drills and barcode checks achieving a $\geq 95\%$ scan-verification rate on a randomized set; apply Tall Man lettering correctly on 10 of 10 designated pairs.
2. Select PPE and clean benches per SOP; pass a 5-item contamination-risk spot check (all correct).
3. Explain, at technician depth, how common antihistamines reduce symptoms and identify two sedation/interaction cautions that require pharmacist referral.

Course Standards: Pharmacy Technician II

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 10-12, and Pharmacy Technician I is the prerequisite.
2. **INTRODUCTION**
 - A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
 - F. The Pharmacy Technician Program of Study equips high school students with the knowledge and skills needed for careers in pharmacy and healthcare. Through a sequence of courses, students learn healthcare systems, pharmacology, prescription processing, and patient care practices, with hands-on training in compounding, inventory management, and pharmacy technology. The program includes a minimum of 160 hours of work-based learning, internships, or apprenticeships in licensed pharmacy settings, meeting Maryland Board of Pharmacy requirements. Students are prepared to achieve national certification as Certified Pharmacy Technicians (CPhT) and transition into entry-level roles or advanced healthcare pathways.
 - C. Pharmacy Technician II builds on foundational skills with advanced training in pharmacy law, prescription processing, sterile and non-sterile compounding, and inventory management. A required 160-hour work-based learning experience and preparation for the Certified Pharmacy Technician (CPhT) exam ensure students are ready to meet Maryland Board of Pharmacy certification standards.
 - D. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
 - E. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a co-curricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.
3. **KNOWLEDGE AND SKILLS**
 - A. **The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:**
 1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
 2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
 3. Employ effective reading, writing, and technical documentation skills.
 4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
 5. Demonstrate leadership skills and collaborate effectively as a team member.

6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate proficiency in using emerging and industry-standard technologies.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply English concepts such as writing informative texts when documenting the procedures and articulating goals.
3. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions as well as fraction and decimal conversions.

E. The student demonstrates nonsterile compounding competency per USP <795> (simulation). The student is expected to:

1. Complete Master Formulation Records (MFR) and Compounding Records (CR) with zero critical omissions; execute trituration, levigation, geometric dilution, and alligation with $\pm 3\%$ final yield.
2. Assign BUDs aligned to USP criteria and justify choices in writing using at least three decision factors (ingredient stability, water activity, packaging).
3. Package and label compounded products with 100% label compliance and document cleaning logs per schedule.

F. The student demonstrates sterile compounding simulations aligned to USP <797> (simulation only). The student is expected to:

1. Perform garbing and hand hygiene per checklist with no critical failures over two consecutive evaluations.
2. Complete gloved-fingertip and media-fill demonstrations (educational only); analyze any growth/positivity and submit a corrective-action memo.

3. Calculate IV admixture concentrations and infusion rates from case orders with $\geq 90\%$ accuracy; identify two incompatibilities using given references.

G. The student demonstrates controlled-substance handling and compliance (simulation).

The student is expected to:

1. Maintain a mock perpetual inventory and reconcile a seeded discrepancy to zero using a documented audit trail.
2. Explain DEA 222/CSOS workflows; complete a sample Form 222 packet free of critical errors.
3. Detect fraudulent or altered prescriptions using red-flag indicators (e.g., quantities, wording, multiple erasures) and execute the site procedure: hold prescription, notify pharmacist/manager, document and, when directed, contact prescriber/pharmacy/authorities.

H. The student demonstrates community and health-system dispensing operations (simulation). The student is expected to:

1. Prepare unit-dose packages with correct NDC/lot/exp placeholders and barcode; achieve $\geq 95\%$ scan readability across a 20-item batch.
2. Perform a mini cart-fill and ADC restock emulation; resolve 100% of seeded bin discrepancies with documentation.

I. The student demonstrates reimbursement and documentation procedures (simulation).

The student is expected to:

1. Process claims with DAW codes and produce a reversal/COB record that meets a 10-field documentation standard.
2. Draft a prior authorization outline with 3 clinical justification elements and attach formulary/tiers evidence.
3. Compare Maryland Medicaid vs. MCO policies in case scenarios (e.g., coverage lists, 30-day supply limits, fill-within-30-days rule), and complete claim/reversal artifacts that reflect these requirements.

J. The student supports vaccine workflow within technician scope (simulation).

The student is expected to:

1. Maintain cold-chain documentation with no temperature excursions across a two-week lab; complete VIS packet, lot/exp tracking, and billing template.
2. Route clinical questions and administration to licensed personnel; record pharmacist verification 100% of the time.
3. Demonstrate needlestick-prevention behaviors (no recapping, safety device activation) in simulation and dispose of sharps correctly; complete a mock exposure report with zero critical omissions.
4. Differentiate immunization vs. immunity and identify at least three factors that affect immunity (e.g., age, prior doses, immunocompromise).
5. Apply CDC immunization schedule tables to determine age-appropriate eligibility for at least six retail vaccines.
6. List the most common retail vaccines (e.g., influenza, COVID-19, Tdap, zoster, pneumococcal, hepatitis, HPV) and state age minima/conditions used in retail protocols (state policy and pharmacist direction govern final eligibility).
7. Recognize signs of allergic reactions and anaphylaxis (e.g., hives, wheeze, hypotension) and execute escalation: activate emergency response, notify pharmacist immediately, locate epinephrine per site protocol, and document the event.

K. The student demonstrates the necessary skills for assembling a professional portfolio and readiness artifacts that align with pharmacy technician technical competencies and quality documentation requirements. The student is expected to:

1. Assemble a readiness portfolio (MFR/CR samples, logs, audit memos, calculation exams $\geq 90\%$) mapped to national exam domains.
2. Complete a mock supervisor evaluation meeting or exceeding proficiency on $\geq 80\%$ of role competencies.

L. The student demonstrates the necessary skills for legal, ethical, and regulatory documentation in pharmacy settings. The student is expected to:

1. Protect PHI in all classroom/science-lab artifacts (labels, logs, records) by using de-identified data; complete HIPAA privacy acknowledgment and Notice of Privacy Practices templates with no critical omissions.
2. Assemble a controlled-substance documentation packet that includes sample invoices/receipts, DEA 222/CSOS exemplars, perpetual inventory pages, transfer/return forms, and a biennial inventory summary; maintain chain-of-custody records per site SOP.
3. Detect and document suspected fraudulent prescriptions using red-flag indicators (quantity, wording alterations, prescriber inconsistencies) and execute the site procedure: hold prescription, escalate to the pharmacist, document actions, and, when directed, contact the prescriber/other pharmacy/authorities.
4. Compile a mock audit binder for regulatory review (DEA/Board/USP) containing policy/SOP index, training/competency records, temperature and cleaning logs, controlled-substance records, and receiving/storage documentation; submit for evaluation using the program rubric.
5. Record medication incidents, near-misses, and adverse events on program forms; route to the pharmacist for review; propose corrective and preventive actions (CAPA) and file completed documentation.
6. Document technician scope and pharmacist verification by obtaining required pharmacist initials/signatures on forms that require licensed review (e.g., final product verification, clinical recommendations, regulatory attestations).
7. Maintain hazardous-drug records (simulation) aligned to program SOPs (receiving logs, storage/segregation, labeling/transport, disposal manifests) and complete a spill report and decontamination checklist following a simulated event.

Course Standards: Pharmacy Technician III

1. **GENERAL REQUIREMENTS.** This course is recommended for students in Grades 11-12, and Pharmacy Technician I and II are the prerequisites.
2. **INTRODUCTION**
 - A. Career and Technical Education (CTE) instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - B. The Health and Human Services Career Cluster promotes whole health in individuals and communities through diverse services. This sector includes technical, mental, and therapeutic services and personal care supported by medical and social sciences. By addressing social determinants of health and leveraging health data and science, this Cluster aims to enhance the overall health and resilience of individuals, families, and communities.
 - C. The Pharmacy Technician Program of Study equips high school students with the knowledge and skills needed for careers in pharmacy and healthcare. Through a sequence of courses, students learn healthcare systems, pharmacology, prescription processing, and patient care practices, with hands-on training in compounding, inventory management, and pharmacy technology. The program includes a minimum of 160 hours of work-based learning, internships, or apprenticeships in licensed pharmacy settings, meeting Maryland Board of Pharmacy requirements. Students are prepared to achieve national certification as Certified Pharmacy Technicians (CPhT) and transition into entry-level roles or advanced healthcare pathways.
 - D. Pharmacy Technician III course explores advanced healthcare topics, focusing on the human body's structure, functions, and pathophysiology. Students apply their knowledge in laboratory investigations, analyze diagnostic data, and learn therapeutic interventions, preparing for roles in advanced pharmacy and healthcare pathways.
 - E. Students will participate in at least two Career-Connected Education and Work-Based Learning experiences in this course, which might include informational interviews or job shadowing relevant to the program of study.
 - F. Students are encouraged to participate in extended learning experiences through aligned Career and Technical Student Organizations (CTSOs). CTSOs are a co-curricular requirement in the Carl D. Perkins Act, and alignment to CTSO activities is an expectation for CTE programs in the state of Maryland.
3. **KNOWLEDGE AND SKILLS**
 - A. **The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes. The student is expected to:**
 1. Identify and demonstrate positive work behaviors that enhance employability and job advancement, such as regular attendance, promptness, proper attire, maintenance of a clean and safe work environment, and pride in work.
 2. Demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, active listening, and a willingness to learn.
 3. Employ effective reading, writing, and technical documentation skills.
 4. Solve problems using critical thinking techniques and structured troubleshooting methodologies.
 5. Demonstrate leadership skills and collaborate effectively as a team member.

6. Implement safety procedures, including proper use of software and following privacy guidelines.
7. Exhibit an understanding of legal and ethical responsibilities in the healthcare field, following copyright laws and regulations.
8. Demonstrate time-management skills and the ability to prioritize tasks in a technical setting.

B. The student identifies various career pathways in the healthcare field. The student is expected to:

1. Develop a career plan that includes the necessary education, certifications, job skills, and experience for specific roles in healthcare.
2. Create a professional resume and portfolio that reflect skills, projects, certifications, and recommendations.
3. Demonstrate effective interview skills for roles in healthcare fields.
4. Understand the different types of pharmacies, including long-term care, nuclear, hospital, hospice, and retail.

C. The student develops technology and digital literacy skills. The student is expected to:

1. Use technology as a tool for research, organization, communication, and problem-solving.
2. Use digital tools, including computers, mobile devices, collaboration platforms, and cloud services, to access, manage, and create information.
3. Demonstrate proficiency in using emerging and industry-standard technologies.
4. Understand ethical and legal considerations for technology use, including the principles of data protection, copyright, and responsible technology use.

D. The student integrates core academic skills into healthcare practices. The student is expected to:

1. Demonstrate the use of clear communication techniques, both written and verbal, that are consistent with industry standards.
2. Apply English concepts such as writing informative texts when documenting procedures and articulating goals.
3. Use mathematical concepts for measurement and conversion (Fahrenheit vs. Celsius), ratios and proportions as well as fraction and decimal conversions.

E. The student demonstrates advanced sterile and hazardous drug concepts (simulation). The student is expected to:

1. Conduct a spill-kit drill using dyed water; submit an incident report and decontamination checklist with zero critical omissions.
2. Map USP <800> workflows (receiving → disposal) and defend the sequence using risk-assessment language (containment, segregation, labeling).

F. The student demonstrates advanced nonsterile and specialty compounding practices (simulation). The student is expected to:

1. Prepare complex formulations (e.g., emulsions) meeting $\pm 3\%$ mass balance and pass a labeled QC checklist ($\geq 95\%$).
2. Produce BUD justifications that cite USP criteria, packaging, and known stability data; flag when pharmacist review is required.
3. Assemble a REMS documentation packet for a case therapy with all patient, pharmacy, and prescriber components present.

G. The student demonstrates automation and informatics competencies (simulation). The student is expected to:

1. Reconcile ADC “inventory” (emulated) and resolve 100% of seeded discrepancies; generate a variance report with root-cause statements and corrective actions.
2. Create inventory analytics (par levels, usage, short-dates) in a spreadsheet; recommend two purchasing adjustments supported by data.

H. The student demonstrates audit readiness and medication safety/quality improvement (simulation). The student is expected to:

1. Compile a mock audit binder (invoices, 222/CSOS samples, perpetuals, temperature/cleaning logs) that passes an external rubric at $\geq 90\%$.
2. Perform a near-miss RCA on a provided case and submit a corrective-action plan with measurable follow-ups and owners.

I. The student demonstrates health-system workflows at technician depth (simulation). The student is expected to:

1. Produce IV batch and TPN label sets with correct calculations and staging documentation; achieve zero critical label errors.
2. Document waste/returns for sterile and hazardous products using chain-of-custody forms with 100% required fields.

J. The student demonstrates OTC/herbal support and pharmacist referral (simulation). The student is expected to:

1. Build an OTC planogram and solve 10 red-flag scenarios with appropriate pharmacist referral documentation.
2. Analyze five herb-drug interaction cases and produce referral scripts with rationale tied to mechanism or risk.
3. Identify common herbal products (e.g., St. John’s wort, ginkgo, ginseng, echinacea, garlic), typical dosage forms (tea, capsules, extracts, topicals), and two interaction/red-flag scenarios per product; document pharmacist referral.
4. Screen interaction/contraindication cases using references and document “no counseling—refer to pharmacist” on all clinical recommendations; record pharmacist response.

K. The student demonstrates capstone completion and transition to practice (classroom or WBL). The student is expected to:

1. Submit a capstone portfolio (audit binder, QC artifacts, RCA, analytics report, calculation exam $\geq 90\%$, mock interview rubric $\geq 85\%$).
2. Finalize national certification application steps and produce a 30-60-90 day development plan for entry-level employment.
3. Complete national certification preparation (PTCE/ExCPT) including domain-mapped study plan, practice exam, and application steps; achieve $\geq 85\%$ on a comprehensive mock.