

# Course Outline

Health Science and Medical Technology

REVISED: August/2020

**Job Title**

Pharmacy Technician

**77-90-65**

**Career Pathway:**

Patient Care

## Pharmacy Technician Upgrade

**Industry Sector:**

Health Science and Medical Technology

**Credits:** 15

**Hours:** 200

**O\*NET-SOC CODE:**

29-2052.00

**Course Description:**

This competency-based course is designed to prepare students for employment in a pharmaceutical setting. The class consists of theory and clinical preparation to include: advanced Interpersonal Skills for pharmacy technicians, advanced Drug Requirements, advanced duties and responsibilities of a pharmacy technician, advanced pharmacy calculations, advanced record keeping, advanced knowledge of manufacturing, completion of 120 hours of clinical training in a facility, preparation for the Pharmacy Technician Certification Board (PTCB) Exam. At the successful completion of this course, students will be qualified to register for the pharmacy technician certification board exam. Students will perform community classroom activities while under the direct supervision of a pharmacist. The competencies in this course are aligned with the California High School Academic Content Standards and the California Career Technical Education Model Curriculum Standards.

**CBEDS Title:**

Healthcare Occupations

**Prerequisites:**

Enrollment requires the successful completion of the Pharmacy Technician (77-90-60) course, a U.S. High School Diploma, high school equivalency, or A.A. Degree, math skill level equivalent to Math 2 (53-03-76), at least 18 years of age, possession of an AHA or BLS Healthcare Providers current Basic "C" CPR Certificate, tuberculosis clearance, and a physical exam.

**NOTE:** For Perkins purposes this course has been designated as an **capstone** course.

**CBEDS No.:**

4257

This course can be repeated once a student receives a Certificate of Completion.



## **COURSE OUTLINE COMPETENCY-BASED COMPONENTS**

A course outline reflects the essential intent and content of the course described. Acceptable course outlines have six components. (Education Code Section 52506). Course outlines for all apportionment classes, including those in jails, state hospitals, and convalescent hospitals, contain the six required elements:

(EC 52504; 5CCR 10508 [b]; Adult Education Handbook for California [1977], Section 100)

### **COURSE OUTLINE COMPONENTS**

### **LOCATION**

#### **GOALS AND PURPOSES**

Cover

The educational goals or purposes of every course are clearly stated, and the class periods are devoted to instruction. The course should be broad enough in scope and should have sufficient educational worth to justify the expenditure of public funds.

The goals and purpose of a course are stated in the COURSE DESCRIPTION. Course descriptions state the major emphasis and content of a course and are written to be understandable by a prospective student.

#### **PERFORMANCE OBJECTIVES OR COMPETENCIES**

pp. 8-13

Objectives should be delineated and described in terms of measurable results for the student and include the possible ways in which the objectives contribute to the student's acquisition of skills and competencies.

Performance Objectives are sequentially listed in the COMPETENCY-BASED COMPONENTS section of the course outline. Competency Areas are units of instruction based on related competencies. Competency Statements are competency area goals that together define the framework and purpose of a course. Competencies fall on a continuum between goals and performance objectives and denote the outcome of instruction.

Competency-based instruction tells a student before instruction what skills or knowledge they will demonstrate after instruction. Competency-based education provides instruction which enables each student to attain individual goals as measured against pre-stated standards.

Competency-based instruction provides immediate and continual repetition and in competency-based education the curriculum, instruction, and assessment share common characteristics based on clearly stated competencies. Curriculum, instruction, and assessment in competency-based education are explicit, known, agreed upon, integrated, performance oriented, and adaptive.

**COURSE OUTLINE COMPETENCY-BASED COMPONENTS**  
**(continued)**

<b>COURSE OUTLINE COMPONENTS</b>	<b>LOCATION</b>
<p><b>INSTRUCTIONAL STRATEGIES</b></p> <p>Instructional techniques or methods could include laboratory techniques, lecture method, small-group discussion, grouping plans, and other strategies used in the classroom.</p> <p>Instructional strategies for this course are listed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructional strategies and activities for a course should be selected so that the overall teaching approach takes into account the instructional standards of a particular program, i.e., English as a Second Language, Programs for Adults with Disabilities.</p>	p. 16
<p><b>UNITS OF STUDY, WITH APPROXIMATE HOURS ALLOTTED FOR EACH UNIT</b></p> <p>The approximate time devoted to each instructional unit within the course, as well as the total hours for the course, is indicated. The time in class is consistent with the needs of the student, and the length of the class should be that it ensures the student will learn at an optimum level.</p> <p>Units of study, with approximate hours allotted for each unit are listed in the COMPETENCY AREA STATEMENT(S) of the course outline. The total hours of the course, including work-based learning hours (community classroom and cooperative vocational education) is listed on the cover of every CBE course outline. Each Competency Area listed within a CBE outline is assigned hours of instruction per unit.</p>	Cover pp. 8-13
<p><b>EVALUATION PROCEDURES</b></p> <p>The evaluation describes measurable evaluation criteria clearly within the reach of the student. The evaluation indicates anticipated improvement in performances as well as anticipated skills and competencies to be achieved.</p> <p>Evaluation procedures are detailed in the TEACHING STRATEGIES AND EVALUATION section of the course outline. Instructors monitor students' progress on a continuing basis, assessing students on attainment of objectives identified in the course outline through a variety of formal and informal tests (applied performance procedures, observations, and simulations), paper and pencil exams, and standardized tests.</p>	pp. 16-17
<p><b>REPETITION POLICY THAT PREVENTS PERPETUATION OF STUDENT ENROLLMENT</b></p> <p>After a student has completed all the objectives of the course, he or she should not be allowed to reenroll in the course. There is, therefore, a need for a statement about the conditions for possible repetition of a course to prevent perpetuation of students in a particular program for an indefinite period of time.</p>	Cover

## **ACKNOWLEDGMENTS**

Thanks to VICKY BROCCOLO and LUZ GRANADOS for developing and editing this curriculum. Acknowledgment is also given to ERICA ROSARIO for designing the original artwork for the course covers.

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**CALIFORNIA CAREER TECHNICAL EDUCATION MODEL CURRICULUM STANDARDS**  
**Health Science and Medical Technology Industry Sector**  
**Knowledge and Performance Anchor Standards**

**1.0 Academics**

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Health Science and Medical Technology academic alignment matrix for identification of standards.

**2.0 Communications**

Acquire and accurately use Health Science and Medical Technology sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.

**3.0 Career Planning and Management**

Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.

**4.0 Technology**

Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Health Science and Medical Technology sector workplace environment.

**5.0 Problem Solving and Critical Thinking**

Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Health Science and Medical Technology sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.

**6.0 Health and Safety**

Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Health Science and Medical Technology sector workplace environment.

**7.0 Responsibility and Flexibility**

Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Health Science and Medical Technology sector workplace environment and community settings.

**8.0 Ethics and Legal Responsibilities**

Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms.

**9.0 Leadership and Teamwork**

Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution as practiced in the Cal-HOSA career technical student organization.

**10.0 Technical Knowledge and Skills**

Apply essential technical knowledge and skills common to all pathways in the Health Science and Medical Technology sector, following procedures when carrying out experiments or performing technical tasks.

**11.0 Demonstration and Application**

Demonstrate and apply the knowledge and skills contained in the Health Science and Medical Technology anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings and through the Cal-HOSA career technical student organization.

## ***Health Science and Medical Technology Pathway Standards***

### **B. Patient Care Pathway**

The standards for the Patient Care pathway apply to occupations or functions involved in the prevention, treatment, and management of illness and the preservation of mental and physical well-being through the services offered by the medical and allied health professions. The standards specify the knowledge and skills needed by professional and technical personnel pursuing careers in this pathway.

#### **Sample occupations associated with this pathway:**

- ◆ Kinesiotherapist
- ◆ Nurse Anesthetist
- ◆ Respiratory Therapist
- ◆ Radiologic Technician
- ◆ Dental Hygienist

- B1.0 Recognize the integrated systems approach to health care delivery services: prevention, diagnosis, pathology, and treatment
- B2.0 Understand the basic structure and function of the human body and relate normal function to common disorders.
- B3.0 Know how to apply mathematical computations used in health care delivery system.
- B4.0 Recognize and practice components of an intake assessment relevant to patient care.
- B5.0 Know the definition, spelling, pronunciation, and use of appropriate terminology in the health care setting.
- B6.0 Communicate procedures and goals to patients using various communication strategies to respond to questions and concerns.
- B7.0 Apply observation techniques to detect changes in the health status of patients.
- B8.0 Demonstrate the principles of body mechanics as they apply to the positioning, transferring, and transporting of patients.
- B9.0 Implement wellness strategies for the prevention of injury and disease behaviors that prevent injury and illness
- B10.0 Comply with protocols and preventative health practices necessary to maintain a safe
- B11.0 Comply with hazardous waste disposal policies and procedures, including documentation, to ensure that regulated waste is handled, packaged, stored, and disposed of in accordance with federal, state, and local regulations.
- B12.0 Adhere to the roles and responsibilities, within the scope of practice, that contribute to the design and implementation of treatment planning
- B13.0 Research factors that define cultural differences between and among different ethnic, racial, and cultural groups and special populations.

## **American Society of Health-System Pharmacists (ASHP) Standards**

### **STANDARD CATEGORIES**

1. Personal/Interpersonal Knowledge and Skills
2. Foundational Professional Knowledge and Skills
3. Processing and Handling of Medications and Medication Orders
4. Patient Care, Quality and Safety Knowledge and Skills
5. Regulatory and Compliance Knowledge and Skills
6. Authority and Responsibility provided to Program Director
7. Strategic Plan
8. Advisory Committee
9. Curricular Length
10. Curricular Composition and Delivery
11. Student Recruitment, Acceptance, Enrollment, and Representation
12. Faculty/Instructors
13. Documentation
14. Assessment of Competency Expectations
15. Assessments of Structure and Process

## **Pharmacy Technician Certification Examination (PTCE) Content Outline**

1. Medications
2. Federal Requirements
3. Patient Safety and Quality Assurance
4. Order Entry and Processing

**CBE**  
**Competency-Based Education**

**COMPETENCY-BASED COMPONENTS**  
**for the Pharmacy Technician - Upgrade Course**

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>A. INTRODUCTION</p> <p>Demonstrate understanding of course policies and procedures.</p> <p>Theory: 2 hours)</p>	<ol style="list-style-type: none"> <li>1. Describe class requirements.</li> <li>2. Describe pharmacy technician’s role, pharmacist’s role, and other occupations in healthcare.</li> <li>3. Describe appropriate behavior and dress standards for classroom and clinical settings.</li> <li>4. Review course standards and state requirements including how felony conviction or history of substance abuse could prohibit registration and/or employment as a pharmacy technician.</li> <li>5. Describe professionalism in the health care setting.</li> <li>6. Understand applicable state and federal laws to pharmacy practice</li> <li>7. Demonstrate ethical conduct.</li> <li>8. Apply self-management skills, including time, stress, and change management</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 3, 5, 7, 8, 12</p> <p><b>CTE Anchor:</b> Communication: 2.2, 2.2 Problem Solving and Critical Thinking: 5.1, 5.4 Responsibility and Flexibility: 7.2, 7.3, 7.7 Ethics and Legal Responsibilities: 8.2, 8.3, 8.4 Technical Knowledge and Skills: 10.1, 10.2</p> <p><b>CTE Pathway:</b> B10.5, B12.2</p>
<p>B. SAFETY PROCEDURES</p> <p>Describe safety and health standards in the workplace setting.</p>	<ol style="list-style-type: none"> <li>1. Describe Cal OSHA requirements in the workplace setting.</li> <li>2. Review classroom and lab safety rules and regulations.</li> <li>3. Describe health and safety procedures for the product and the dispenser.</li> <li>4. Describe the role of a pharmacy technician in reporting and documentation.</li> <li>5. Pass the safety test with 100% accuracy.</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 11, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Health and Safety: 6.2, 6.6, 6.8 Responsibility and Flexibility: 7.2, 7.7 Ethics and Legal Responsibilities: 8.1, 8.2, 8.4, 8.5 Leadership and Teamwork: 9.2, 9.3</p>



COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
Theory: 1 hours) (Community Classroom: 2 hours)		<b>CTE Pathway:</b> B10.4, B11.4
<p>C. COMMUNICATION AND CUSTOMER SERVICE</p> <p>Describe telephone etiquette, communication styles, ethics, and confidentiality.</p> <p>(Theory: 15 hours) Community Classroom: 35 hours)</p>	<ol style="list-style-type: none"> <li>1. Demonstrate a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals</li> <li>2. Apply interpersonal skills, including negotiation skills, conflict resolution, customer service, and teamwork</li> <li>3. Understand the Health Insurance Portability and Accountability Act (HIPAA)</li> <li>4. Apply critical thinking, creativity, and innovation</li> <li>5. Apply supervisory skills related to human resource policies and procedures</li> <li>6. Demonstrate the ability to effectively and professionally communicate with other healthcare professionals, third-party payors, and other individuals necessary to serve the needs of patients and practice</li> <li>7. Initiate, verify, and manage the adjudication of billing for complex and/or specialized pharmacy services and goods</li> <li>8. Perform point-of-care testing to assist pharmacist in assessing patient's clinical status.</li> <li>9. Participate in the operations of medication management services.</li> <li>10. Demonstrate Capability to manage or supervise pharmacy technicians in matters such as conflict resolution, teamwork, and customer service</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 9, 10, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4 Responsibility and Flexibility: 7.1, 7.2, 7.3, 7.7 Ethics and Legal Responsibilities: 8.2, 8.3, 8.4, 8.5, 8.7 Leadership and Teamwork: 9.1, 9.2, 9.7 Technical Knowledge and Skills: 10.1, 10.2, 10.4 Demonstration and Application: 11.1</p> <p><b>CTE Pathway:</b> B4.1, B4.4, B4.5, B6.1, B6.2, B6.3, B6.4, B6.6, B7.1, B12.2, B12.4, B13.6</p>
<p>D. PHARMACOLOGY</p> <p>Demonstrate an understanding of medication and drug sources, abbreviations, actions, and physician orders.</p>	<ol style="list-style-type: none"> <li>1. Demonstrate basic knowledge of anatomy, physiology, and pharmacology, drug abbreviations and medical terminology relevant to the pharmacy technician's role</li> <li>2. Describe the various uses of drugs, their sources, and various routes of administration.</li> <li>3. Describe basic drug classifications, equivalence, actions, and reactions.</li> <li>4. Demonstrate an understanding of written physician's orders and translate to "every-day language."</li> <li>5. Describe wellness promotion and disease prevention concepts</li> <li>6. Process, handle, and demonstrate administration techniques and document administration of immunizations and other injectable medications.</li> <li>7. Describe investigational process, medications being used in off-label indications, and emerging drug therapies</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 4, 5, 8, 10, 11, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.6, 2.7, 2.8 Technology: 4.1, 4.2, 4.5 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4, 5.6 Health and Safety: 6.2, 6.6 Ethics and Legal Responsibilities: 8.2, 8.3, 8.4, 8.7 Leadership and Teamwork: 9.3,</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
(Theory: 15 hours) (Community Classroom: 25 hours)	<ol style="list-style-type: none"> <li>8. Support wellness promotion and disease prevention programs</li> <li>9. Apply the appropriate medication use process to investigational drugs, medications being used in off-label indications, and emerging drug therapies as required.</li> <li>10. Participate in technical and operational activities to support the <i>Pharmacists' Patient Care Process</i> as assigned.</li> </ol>	<p>Technical Knowledge and Skills: 10.1, 10.2, 10.4</p> <p>Demonstration and Application: 11.1, 11.2</p> <p><b>CTE Pathway:</b> B1.1, B1.3, B1.5, B2.1, B5.1, B5.2, B5.3, B5.4, B5.5, B5.6, B5.7, B12.2</p>
<p>E. CALCULATIONS</p> <p>Demonstrate various mathematical procedures required for prescription dosages.</p> <p>(Theory: 20 hours) (Community Classroom: 25 hours)</p>	<ol style="list-style-type: none"> <li>1. Perform mathematical calculations essential to the duties of pharmacy technicians in a variety of settings</li> <li>2. Demonstrate knowledge of metric and household equivalents.</li> <li>3. Demonstrate ratios, proportions, conversions, allegations, concentrations, dilutions, and days' supply as they relate to pharmacy practice.</li> <li>4. Demonstrate the set-up for dosage calculation, via ratio-proportion for a drug.</li> <li>5. Calculate pediatric dosages per kilogram of body weight.</li> <li>6. Explain the use of milliequivalent (Meq) and units (U) in dosage calculations.</li> <li>7. Calculate I.V. infusion rates.</li> <li>8. Recognize and calculate unit dose systems.</li> <li>9. Describe technician's role with client when explaining drug dosages.</li> <li>10. Verify measurements, preparation, and/or packaging of medications produced by other healthcare professionals.</li> </ol>	<p><b>Career Ready Practice:</b> 1, 5, 7, 8, 10</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.3, 2.7, 2.8 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 Responsibility and Flexibility: 7.2 Ethics and Legal Responsibilities: 8.2, 8.3, 8.5 Technical Knowledge and Skills: 10.1, 10.4 Demonstration and Application: 11.1</p> <p><b>CTE Pathway:</b> B3.1, B3.2, B3.3, B7.3</p>
<p>F. PROCESSING AND HANDLING OF MEDICATIONS AND MEDICATION ORDERS</p> <p>Demonstrate knowledge of medication distribution, record-keeping functions and prescription dispensing.</p>	<ol style="list-style-type: none"> <li>1. Prepare simple non-sterile medications per applicable USP chapters (e.g., reconstitution, basic ointments, and creams).</li> <li>2. Assist pharmacists in preparing medications requiring compounding of non-sterile products.</li> <li>3. Prepare, store, and deliver medication products requiring special handling and documentation.</li> <li>4. Prepare compounded sterile preparations per applicable, current USP Chapters.</li> <li>5. Prepare medications requiring moderate and high level non-sterile compounding as defined by USP (e.g., suppositories, tablets, complex creams).</li> <li>6. Prepare or simulate chemotherapy/hazardous drug preparations per applicable, current USP Chapters</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 8, 10, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5, 2.7, 2.8 Technology: 4.1 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3 Leadership and Teamwork: 9.2, 9.3, 9.6, 9.7</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>(Theory: 10 hours) (Community Classroom: 15 Hours)</p>	<ol style="list-style-type: none"> <li>7. Apply accepted procedures in purchasing pharmaceuticals, devices, and supplies</li> <li>8. Apply accepted procedures in inventory control of medications, equipment, and devices.</li> <li>9. Manage drug product inventory stored in equipment or devices used to ensure the safety and accuracy of medication dispensing.</li> <li>10. Process, handle and demonstrate administration techniques and document administration of immunizations and other injectable medications</li> <li>11. Complete one additional experiential rotation in a dispensing pharmacy setting where student will utilize skills learned during the Advanced Level Curriculum – (See Community Classroom Hours throughout course outline)</li> </ol>	<p>Technical Knowledge and Skills: 10.1, 10.4</p> <p>Demonstration and Application: 11.1, 11.2</p> <p><b>CTE Pathway:</b> B1.1, B1.2, B2.3, B2.4, B3.1, B3.3, B4.5, B6.2, B6.3, B6.4, B10.2, B10.3, B10.4, B10.6, B10.7, B12.2, B12.3, B12.4</p>
<p>G. Pharmacy Technician Certification Board (PTCB) Exam Review - Medications</p> <p>(Theory: 10 hours)</p>	<ol style="list-style-type: none"> <li>1. Generic names, brand names, and classifications of medications</li> <li>2. Therapeutic equivalence</li> <li>3. Common and life-threatening drug interactions and contraindications (e.g., drug-disease, drug-drug, drug-dietary supplement, drug-laboratory, drug-nutrient)</li> <li>4. Strengths/dose, dosage forms, routes of administration, special handling and administration instructions, and duration of drug therapy</li> <li>5. Common and severe medication side effects, adverse effects, and allergies</li> <li>6. Indications of medications and dietary supplements</li> <li>7. Drug stability (e.g., oral suspensions, insulin, reconstitutables, injectables, vaccinations)</li> <li>8. Narrow therapeutic index (NTI) medications</li> <li>9. Physical and chemical incompatibilities related to non-sterile compounding and reconstitution</li> <li>10. Proper storage of medications (e.g., temperature ranges, light sensitivity, restricted access)</li> <li>11. Apply quality assurance practices to pharmaceuticals, durable and non-durable medical equipment, devices, and supplies.</li> <li>12. Explain procedures and communication channels to use in the event of a product recall or shortage, a medication error, or identification of another problem.</li> <li>13. Use current technology to ensure the safety and accuracy of medication dispensing.</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.6, 2.7</p> <p>Problem Solving and Critical Thinking: 5.1, 5.2, 5.3</p> <p>Health Safety 6.6</p> <p>Responsibility and Flexibility 7.2</p> <p>Ethics and Legal Responsibilities: 8.1, 8.3, 8.4, 8.7</p> <p>Technical Knowledge and Skills: 10.1, 10.2</p> <p><b>CTE Pathway:</b> B1.1, B1.2, B1.4, B5.1, B5.2, B5.3, B5.4, B5.5, B12.3, B12.4</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>H. Pharmacy Technician Certification Board (PTCB) Exam Review - Federal Requirements</p> <p>(Theory: 5 hours)</p>	<ol style="list-style-type: none"> <li>1. Federal requirements for handling and disposal of non-hazardous, hazardous, and pharmaceutical substances and waste</li> <li>2. Federal requirements for controlled substance prescriptions (i.e., new, refill, transfer) and DEA controlled substance schedules</li> <li>3. Federal requirements (e.g., DEA, FDA) for controlled substances (i.e., receiving, storing, ordering, labeling, dispensing, reverse distribution, take-back programs, and loss or theft of)</li> <li>4. Federal requirements for restricted drug programs and related medication processing (e.g., pseudoephedrine, Risk Evaluation and Mitigation Strategies [REMS])</li> <li>5. FDA recall requirements (e.g., medications, devices, supplies, supplements, classifications).</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4, 5.6 Responsibility and Flexibility: 7.2 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 Technical Knowledge and Skills: 10.1, 10.2</p> <p><b>CTE Pathway:</b> B11.1, 11.2, 11.3, 11.4, B12.2, B12.4</p>
<p>I. Pharmacy Technician Certification Board (PTCB) Exam Review – Patient Safety and Quality Assurance</p> <p>(Theory: 5 hours)</p>	<ol style="list-style-type: none"> <li>1. High alert/risk medications and look-alike/sound-alike [LASA] medications</li> <li>2. Error prevention strategies (e.g., prescription or medication order to correct patient, Tall Man lettering, separating inventory, leading, and trailing zeros, bar code usage, limit use of error-prone abbreviations)</li> <li>3. Issues that require pharmacist intervention (e.g., drug utilization review [DUR], adverse drug event [ADE], OTC recommendation, therapeutic substitution, misuse, adherence, post-immunization follow-up, allergies, drug interactions)</li> <li>4. Event reporting procedures (e.g., medication errors, adverse effects, and product integrity, MedWatch, near miss, root-cause analysis [RCA])</li> <li>5. Types of prescription errors (e.g., abnormal doses, early refill, incorrect quantity, incorrect patient, incorrect drug)</li> <li>6. Hygiene and cleaning standards (e.g., handwashing, personal protective equipment [PPE], cleaning counting trays, countertop, and equipment)</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6 Problem Solving and Critical Thinking: 5.1, 5.2, 5.3, 5.4, 5.6 Responsibility and Flexibility: 7.2 Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7 Technical Knowledge and Skills: 10.1, 10.2</p> <p><b>CTE Pathway:</b> B11.1, 11.2, 11.3, 11.4, B12.2, B12.4</p>
<p>J. Pharmacy Technician Certification Board (PTCB) Exam Review – Order</p>	<ol style="list-style-type: none"> <li>1. Procedures to compound non-sterile products (e.g., ointments, mixtures, liquids, emulsions, suppositories, enemas)</li> <li>2. Formulas, calculations, ratios, proportions, allegations, conversions, Sig codes (e.g., b.i.d., t.i.d., Roman numerals), abbreviations, medical terminology, and</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 5, 7, 8, 12</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7</p>

COMPETENCY AREAS AND STATEMENTS	MINIMAL COMPETENCIES	STANDARDS
<p>Entry and Processing</p> <p>(Theory: 5 hours)</p>	<p>symbols for days' supply, quantity, dose, concentration, dilutions</p> <ol style="list-style-type: none"> <li>3. Equipment/supplies required for drug administration (e.g., package size, unit dose, diabetic supplies, spacers, oral and injectable syringes)</li> <li>4. Lot numbers, expiration dates, and National Drug Code (NDC) numbers</li> <li>5. Procedures for identifying and returning dispensable, non-dispensable, and expired medications and supplies (e.g., credit return, return to stock, reverse distribution)</li> </ol>	<p>Problem Solving and Critical Thinking: 5.1, 5.5, 5.6</p> <p>Responsibility and Flexibility: 7.7</p> <p>Ethics and Legal Responsibilities: 8.1, 8.2, 8.3, 8i.4, 8.5, 8.6, 8.7</p> <p>Technical Knowledge and Skills 10.2</p> <p><b>CTE Pathway:</b> B3.1, B11.1, 11.2, 11.3, 11.4, B12.2, B12.4</p>
<p>K. EMPLOYABILITY SKILLS</p> <p>Demonstrate the ability to prepare for and keep employment as a pharmacy technician.</p> <p>(Theory: 10 hours)</p>	<ol style="list-style-type: none"> <li>1. Describe various sites to obtain employment information e.g. internet, newspaper, employment office.</li> <li>2. Complete a résumé</li> <li>3. Complete a sample application form.</li> <li>4. Describe and demonstrate interview techniques for employment.</li> <li>5. Describe resigning from a position including time element and letter format.</li> <li>6. Explain the importance of maintaining competency through continuing education and continuing professional development</li> <li>7. Describe the process and responsibilities required to obtain and maintain registration and/or licensure to work as a pharmacy technician.</li> <li>8. Describe further knowledge and skills required for achieving advanced competencies</li> <li>9. Participate in pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual, and safety requirements.</li> <li>10. Describe major trends, issues, goals, and initiatives taking place in the pharmacy profession.</li> </ol>	<p><b>Career Ready Practice:</b> 1, 2, 3, 5, 6, 8, 11</p> <p><b>CTE Anchor:</b> Communication: 2.1, 2.2, 2.3, 2.4, 2.5</p> <p>Career Planning and Management: 3.1, 3.2, 3.4, 3.4, 3.5, 3.6</p> <p>Technology: 4.1, 4.2</p> <p>Problem Solving and Critical Thinking: 5.1, 5.2, 5.6</p> <p>Ethics and Legal Responsibilities: 8.3, 8.4</p> <p>Technical Knowledge and Skills: 10.1</p> <p>Demonstration and Application: 11.1, 11.2, 11.5</p> <p><b>CTE Pathway:</b> B1.1</p>

## ***SUGGESTED INSTRUCTIONAL MATERIALS and OTHER RESOURCES***

### **TEXTBOOKS**

Davis, Karen/Guerra, Anthony. Mosby's Pharmacy Technician Principals and Practice 5th Edition. Elsevier, 2019.

Davis, Karen/Guerra, Anthony. Mosby's Pharmacy Technician Principals and Practice Workbook and Lab Manual 5th Edition. Elsevier, 2019.

Ballington, Don A./ Wiegand-Green, Tova. Pharmacy Calculations for Technicians 5th Edition. Paradigm, 2014

Hamilton, Richard J. Tarascon Pocket Pharmacopoeia Classic Shirt-Pocket 8th Edition. Jones & Bartlett, 2019.

Hochadel, MaryAnne. Mosby's Drug Reference for Health Professions 5th Edition. Elsevier, 2016

Johnston, Mike. Certification Exam Review for the Pharmacy Technician, 3rd Edition. Pearson, 2016.

Mizner, James J. Mosby's Review for the Pharmacy Technician Certification Exam. 3rd Edition. Elsevier, 2016

### **SUPPLEMENTAL MATERIALS**

Darvey, Diane. Legal Handbook of Pharmacy Technicians. American Society of Health System Pharmacists, 2008.

Makely, Sherry. Professionalism in Health Care: A Primer for Career Success, 3<sup>rd</sup> edition. Prentice-Hall, 2008.

### **INSTRUCTIONAL MATERIALS**

Finkel, Richard. Patient Care Management Lab: A Workbook for Prescription Practice. 2<sup>nd</sup> Edition. Lippincott Williams & Wilkins, 2011.

DAA Enterprises, Inc. Pharmacy Management Software for Pharmacy Technicians and Workbook. 3rd Edition. Elsevier, 2019.

Davis, Karen, and Jason Sparks. Getting Started in Non-Sterile Compounding Workbook and DVD. American Society of Health System Pharmacists, 2008.

Davis, Karen, and Jason Sparks. Getting Started in Aseptic Compounding Workbook and DVD. American Society of Health System Pharmacists, 2008.

## **RESOURCES**

Teacher prepared slides, films, transparencies, and instructional packages.

Employer Advisory Board members

Foundation Standards

<http://www.cde.ca.gov/ci/ct/sf/documents/ctstandards.pdf>

<http://www.cde.ca.gov/be/st/ss/documents/ctstandards.doc>

California State Board of Pharmacy

1625 N. Market Blvd, Suite N219, Sacramento, CA 95834

Phone (916) 574-7900

Fax (916) 574-8618

Website: <http://www.pharmacy.ca.gov>

Pharmacy Technician Certification Board

2215 Constitution Avenue NW

Washington, DC 20037-2985

Phone (800) 363-8012

Fax (202) 429-7596

Website: <http://www.ptcb.org>

American Society of Health-System Pharmacists (ASHP)

7272 Wisconsin Avenue

Bethesda, MD 20814

Website: <http://www.ashp.org>

National Pharmacy Technician Association (NPTA)

P.O. Box 683148

Houston, TX 77268

Phone: 888-247-8700

Website: <http://www.pharmacytechnician.org>

American Association of Pharmacy Technicians (AAPT)

P.O. Box 1447

Greensboro, NC 27402

Phone (877) 368-4771

Website: <http://www.pharmacytechnician.org>

## **COMPETENCY CHECKLIST**

## ***TEACHING STRATEGIES and EVALUATION***

### **METHODS AND PROCEDURES**

- A. Lecture and discussion
- B. Demonstration/ participation
- C. Multi-sensory presentation
  - 1. Charts
  - 2. Brochures
  - 3. Pharmaceutical equipment and supplies
  - 4. Videos
  - 5. Overhead transparencies
- D. Individualized instruction
- E. Laboratory practice
- F. Community classroom experience
- G. Guest lecturers

### **EVALUATION**

SECTION A – Introduction – Pass all assignments and exams on introduction with a minimum score of 80% or higher.

SECTION B – Safety Procedures – Pass the safety test with 100% accuracy.

SECTION C – Communication and Customer Service – Pass all assignments and exams on communication with a minimum score of 80% or higher.

SECTION D – Pharmacology – Pass all assignments and exams on pharmacology with a minimum score of 80% or higher.

SECTION E – Calculations – Pass all assignments and exams on calculations with a minimum score of 80% or higher.

SECTION F – Processing and handling of Medications and Medications Orders – Pass all assignments and exams on processing and handling of medications and medication orders with a minimum score of 80% or higher.

SECTION G – Pharmacy Technician Certification Board (PTCB) Exam Review – Medications – Pass all assignments and exams on medications with a minimum score of 80% or higher.

SECTION H - Pharmacy Technician Certification Board (PTCB) Exam Review – Federal Requirements – Pass all assignments and exams on federal requirements with a minimum score of 80% or higher.



SECTION I - Pharmacy Technician Certification Board (PTCB) Exam Review – Patient Safety and Quality Assurances – Pass all assignments and exams on patient safety and quality assurances with a minimum score of 80% or higher.

SECTION J - Pharmacy Technician Certification Board (PTCB) Exam Review – Order Entry and Processing – Pass all assignments and exams on order entry and processing with a minimum score of 80% or higher.

SECTION K – Employability Skills – Pass all assignments and exams on employability skills with a minimum score of 80% or higher.

## ***Standards for Career Ready Practice***

### **1. Apply appropriate technical skills and academic knowledge.**

Career-ready individuals readily access and use the knowledge and skills acquired through experience and education. They make connections between abstract concepts with real-world applications and recognize the value of academic preparation for solving problems, communicating with others, calculating measures, and performing other work-related practices.

### **2. Communicate clearly, effectively, and with reason.**

Career-ready individuals communicate thoughts, ideas, and action plans with clarity, using written, verbal, electronic, and/or visual methods. They are skilled at interacting with others: they are active listeners who speak clearly and with purpose, and they are comfortable with terminology that is common to workplace environments. Career-ready individuals consider the audience for their communication and prepare accordingly to ensure the desired outcome.

### **3. Develop an education and career plan aligned with personal goals.**

Career-ready individuals take personal ownership of their educational and career goals and manage their individual plan to attain these goals. They recognize the value of each step in the educational and experiential process, and they understand that nearly all career paths require ongoing education and experience to adapt to practices, procedures, and expectations of an ever-changing work environment. They seek counselors, mentors, and other experts to assist in the planning and execution of education and career plans.

### **4. Apply technology to enhance productivity.**

Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring and using new technology. They understand the inherent risks—personal and organizational—of technology applications, and they take actions to prevent or mitigate these risks.

### **5. Utilize critical thinking to make sense of problems and persevere in solving them**

Career-ready individuals recognize problems in the workplace, understand the nature of the problems, and devise effective plans to solve the problems. They thoughtfully investigate the root cause of a problem prior to introducing solutions. They carefully consider options to solve a problem and, once agreed upon, follow through to ensure the problem is resolved.

### **6. Practice personal health and understand financial literacy.**

Career-ready individuals understand the relationship between personal health and workplace performance. They contribute to their personal well-being through a healthy diet, regular exercise, and mental health activities. Career-ready individuals also understand that financial literacy leads to a secure future that enables career success.

### **7. Act as a responsible citizen in the workplace and the community.**

Career-ready individuals understand the obligations and responsibilities of being a member of a community and demonstrate this understanding every day through their interactions with others. They are aware of the impacts of their decisions on others and the environment around them, and they think about the short-term and long-term consequences of their actions. They are reliable and consistent in going beyond minimum expectations and in participating in activities that serve the greater good.

**8. Model integrity, ethical leadership, and effective management.**

Career-ready individuals consistently act in ways that align with personal and community-held ideals and principles. They employ ethical behaviors and actions that positively influence others. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the direction and actions of a team or organization, and they recognize the short-term and long-term effects that management's actions and attitudes can have on productivity, morale, and organizational culture.

**9. Work productively in teams while integrating cultural and global competence.**

Career-ready individuals contribute positively to every team, as both team leaders and team members. To avoid barriers to productive and positive interaction, they apply an awareness of cultural differences. They interact effectively and sensitively with all members of the team and find ways to increase the engagement and contribution of other members.

**10. Demonstrate creativity and innovation.**

Career-ready individuals recommend ideas that solve problems in new and different ways and contribute to the improvement of the organization. They consider unconventional ideas and suggestions by others as solutions to issues, tasks, or problems. They discern which ideas and suggestions may have the greatest value. They seek new methods, practices, and ideas from a variety of sources and apply those ideas to their own workplace practices.

**11. Employ valid and reliable research strategies.**

Career-ready individuals employ research practices to plan and carry out investigations, create solutions, and keep abreast of the most current findings related to workplace environments and practices. They use a reliable research process to search for new information and confirm the validity of sources when considering the use and adoption of external information or practices.

**12. Understand the environmental, societal, and economic impacts of decisions.**

Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact other people, organizations, the workplace, and the environment. They are aware of and utilize new technologies, understandings, procedures, and materials and adhere to regulations affecting the nature of their work. They are cognizant of impacts on the social condition, environment, workplace, and profitability of the organization.

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## Statement for Civil Rights

All educational and vocational opportunities are offered without regard to race, color, national origin, gender, or physical disability.

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