

PHARMACY TECHNICIAN (PHT)

720 clock hours/ 9 months (Total time to complete the program may vary based on school holidays and breaks)
28 weeks Theory/Lab (20 hours per week) + 8 weeks externship (20 hours per week)

Program Objective:

This course provides students with the basic knowledge and skills that will qualify them to work as entry-level Pharmacy Technicians in retail and hospital facilities. Upon successful completion of the training, the graduate will be able to identify and understand drug nomenclature, dosage forms, routes of administration, and abbreviations used in pharmacy; identify the most common medications by their trade and generic names; perform conversions and/or calculations of weights and measures; understand Federal and California pharmacy laws; understand basic pharmacology; perform pharmacy operations of the Drug Distribution system, and be able to perform sterile product preparation. At the successful completion of the program, the student will be eligible to apply for licensure as a Pharmacy Technician in the State of California, will be awarded a diploma, and will qualify for the Pharmacy Technician Certified Board (PTCB) exam.

Upon successful completion of the program, graduates may obtain employment as:

- Pharmacy Technician (CIP # 51.0805; O-NET # 29-2052.00)

Mod #	Module Title	Week #	Clock Hours
I	General Concepts of Pharmacy	1-4	80
II	Pharmacology of the Cardio-Vascular & Nervous Systems	5-8	80
III	Pharmacy Billing, Repacking and Compounding	9-12	80
IV	Pharmacology of Infectious Diseases & Endocrine System	13-16	80
V	Hospital Pharmacy and Sterile Products	17-20	80
VI	Pharmacology of Respiratory, Gastrointestinal & Urinary Systems	21-24	80
VII	Anti-Inflammatory and Antihistamine Drugs	25-28	80
VIII	Externship	29-36	160
Total:			720

Note: one clock hour is defined as a 60-minute span of time in which 50 minutes is devoted to actual class instruction, with the remaining portion designated as a break.

For information on graduation rates, median debt of graduates completing this program or other important information, visit <http://www.cbd.edu/programs/pharmacy-technician/>

Program Syllabus:

Course Number	Course Title	Lecture	Lab	Extern	Total Hours
PHT 100	General Concepts of Pharmacy	30	10	0	40
PHT 101	Federal & State Pharmacy Laws and Pharmaceutical Procedures	15	5	0	20
PHT 110	Pharmacy Calculation/Module I Review	10	10	0	20
PHT 200	Pharmacology of the Cardio-Vascular System	15	5	0	20
PHT 201	Pharmacology of the Central Nervous System (CNS)and Peripheral Nervous System(PNS)	15	5	0	20
PHT 202	Psychopharmacology	10	10	0	20
PHT 210	Pharmacy Calculation/Module II Review	10	10	0	20
PHT 300	Pharmacy Stock and Billing	10	10	0	20
PHT 301	Cancer and Oncology Agents	15	5	0	20
PHT 302	Repacking and Compounding	10	10	0	20
PHT 310	Pharmacy Calculation/Module III Review	10	10	0	20
PHT 400	Pharmacology of Endocrine System	15	5	0	20
PHT 401	Pharmacology of Skin Diseases and Over The Counter medications	15	5	0	20
PHT 402	Pharmacology of Infectious Diseases	15	5	0	20
PHT 410	Pharmacy Calculation/Module IV Review	10	10	0	20
PHT 500	Pharmacology of Reproductive System	15	5	0	20
PHT 501	Hospital Pharmacy and Sterile Products	25	15	0	40
PHT 510	Pharmacy Calculation/Module V Review	10	10	0	20
PHT 600	Pharmacology of Respiratory System	15	5	0	20
PHT 601	Pharmacology of the (GI) Gastrointestinal Tract	15	5	0	20
PHT 602	Pharmacology of Urinary System	15	5	0	20
PHT 610	Pharmacy Calculation/Module VI Review	10	10	0	20
PHT 700	Anti-Inflammatory and Antihistamine Drugs	10	10	0	20
PHT 701	CPR/First Aid	10	10	0	20
PHT 702	Career Development	10	10	0	20
PHT 710	Pharmacy Calculation/Module VII Review	10	10	0	20
PHT 800	Externship	0	0	160	160
TOTAL		350	210	160	720

PHT Program Descriptions:

MODULE I PHT 100 GENERAL CONCEPTS OF PHARMACY

Prerequisites: None.

Total clock hours: 40

This course introduces the student to the practice of pharmacy both from a theoretical and practical stand point. Included are instruction in the storage, filling, documentation and interpretation of written prescriptions. Retail and Hospital pharmacy is differentiated as to practice and expectations. The laws dealing with the Controlled Substance Act are discussed and explained. This module differentiates the routes of drug administration. Special consideration is given to the aseptic preparation of IV solutions with storage and documentation emphasized.

MODULE I PHT 101 FEDERAL & STATE PHARMACY LAWS & PHARMACEUTICAL PROCEDURES

Prerequisites: None.

Total clock hours: 20

This course reviews the various Federal and State laws. It covers the history of these laws, controlled substances, standards and ethics, and the liability of the pharmacy, pharmacist and pharmacy technician in regard to this law. Other topics covered include who can have access to prescription files and how the DEA controls drugs of abuse.

MODULE II PHT 200 PHARMACOLOGY OF CARDIOVASCULAR SYSTEM

Prerequisites: None.

Total clock hours: 20

This course begins with an overview of the anatomy of the heart and cardiac conduction system. It also includes conditions affecting the cardiovascular system, treatment, and medications. Students learn different classes of cardio medications, as well as their therapeutic effect and side effects.

MODULE II PHT 201 PHARMACOLOGY OF THE CENTRAL NERVOUS SYSTEM (CNS) AND PERIPHERAL NERVOUS SYSTEM (PNS)

Prerequisites: None.

Total clock hours: 20

This course covers drugs that affect the central nervous system (brain and spinal cord) and how they are used therapeutically to mitigate and treat CNS disorders. This course describes how peripheral nerves (outside the CNS) communicate with our CNS and internal organs. It describes how the PNS is divided into two parts, the voluntary and involuntary nervous system, and how the parasympathetic and sympathetic branches drive each.

MODULE II PHT 202 PSYCHOPHARMACOLOGY

Prerequisites: None.

Total clock hours: 20

This course covers knowledge of the brain and its complexities. It covers such topics as emotional health; nondrug treatments and medication therapy focusing on antipsychotic agents; antidepressants; sedative and hypnotic agents; and other miscellaneous antianxiety agents.

MODULE III PHT 300 PHARMACY STOCK AND BILLING

Prerequisites: None.

Total clock hours: 20

This course introduces students to the primary types of insurance companies and how they manage drug coverage. They learn the difference between Medicaid and Medicare programs. Students learn what drug recalls are and why drugs are returned to the distributor, as well as medication safety and error prevention. They learn what the pharmacy billing procedure is, what third-party billing is, and what formulary drugs are.

MODULE III PHT 301 CANCER AND ONCOLOGY AGENTS

Prerequisites: None.

Total clock hours: 20

This course covers common types of cancer and what causes cancer. Students are introduced to oncology terms. They also learn what nuclear medicine is. Course includes chemotherapy agents and their most common side effects. Students learn which medications are prescribed for the side effects of chemotherapy.

MODULE III PHT 302 REPACKING AND COMPOUNDING

Prerequisites: None.

Total clock hours: 20

This course introduces students to compounding of nonsterile products in outpatient pharmacy. Students learn and practice with equipment used in a compounding pharmacy. They learn the proper procedure of compounding as well. Students also learn the main reasons for repackaging medications and how to calculate expiration dates for repackaged meds. The course also covers special terms and definitions.

MODULE IV PHT 400 PHARMACOLOGY OF ENDOCRINE SYSTEM

Prerequisites: None.

Total clock hours: 20

This course covers the major function of the endocrine system and the medications related to hormones. Students learn different health conditions that require a hormone treatment. Course includes a discussion of hormones, two types of diabetes, and other conditions of endocrine system.

MODULE IV PHT 401 PHARMACOLOGY OF SKIN DISEASES &

OVER THE COUNTER MEDICATIONS

Prerequisites: None.

Total clock hours: 20

This course covers the various maladies associated with our largest organ, the skin. Emphasis is put on the drugs that are used in the treatment and healing of dermatological conditions. Also students learn the most common over-the-counter medications and conditions treated with OTC medications.

MODULE IV PHT 402 PHARMACOLOGY OF THE INFECTIOUS DISEASE

Prerequisites: None.

Total clock hours: 20

The scope of this course covers major infectious diseases, both contagious and non-contagious. Diseases that are endemic and epidemic are covered, with special emphasis on the antibiotics and antiviral drugs that are prescribed. MRSA and other emerging forms of resistant infection are discussed.

MODULE V PHT 500 PHARMACOLOGY OF REPRODUCTIVE SYSTEM

Prerequisites: None.

Total clock hours: 20

This course covers the major function of the reproductive system and the medications related to male and female hormones. Students learn different health conditions that require a hormone treatment. The course also covers contraceptives and sexually transmitted diseases.

MODULE V PHT 501 HOSPITAL PHARMACY AND STERILE PRODUCTS

Prerequisites: None.

Total clock hours: 40

The course covers the most common tasks performed by the hospital pharmacy technician. It clarifies the difference between pharmacy stock and central supply stock. This course provides the student with an understanding of how sterile products used for parenteral administration must be prepared in an aseptic environment. Use of exact aseptic technique are demonstrated and practiced. Students learn that infections in institutions (nosocomial) are becoming more frequent and problematic while preparing IV's.

MODULE VI PHT 600 PHARMACOLOGY OF RESPIRATORY SYSTEM

Prerequisites: None.

Total clock hours: 20

The respiratory course concentrates on the drugs used for treatment of asthma and COPD. Emphasis is placed on the drugs that cause pulmonary dilation without cardiac side effects, such as the new Beta-2 specific agonist drugs. The effects of first and secondhand smoke are discussed. Molecular oxygen as a legend drug is discussed. Upper respiratory infections and allergies such as rhinitis and the rhinovirus (common cold) are discussed, as well as the drugs, both OTC and legend, that are used.

MODULE VI PHT 601 PHARMACOLOGY OF THE (GI) GASTROINTESTINAL TRACT

Prerequisites: None.

Total clock hours: 20

This course explains the pharmacology of drugs used in the treatment of GERD and peptic ulcer disease. It also includes drugs for emesis, nausea, vertigo, gastro stasis, and diarrhea. Over-the-counter maladies are included in this course's lectures and discussions.

MODULE VI PHT 602 PHARMACOLOGY OF URINARY SYSTEM

Prerequisites: None.

Total clock hours: 20

This course discusses various topics regarding the urinary system and the drugs used for the treatment of same. Other topics include diuretics and how they affect renal dynamics along with the impact of sodium and potassium ion. Antianemic and antihypertensive drugs and their impact on the renal and, peripherally, the cardiac hemodynamic system are also discussed. This course covers nutrition and TPN therapy and their impact on the renal and vascular systems in health and disease as well.

MODULE VII PHT 700 ANTI-INFLAMMATORY AND ANTIHISTAMINE DRUGS

Prerequisites: None.

Total clock hours: 20

This course covers the symptoms of inflammation and allergy. Students learn the major inflammation conditions as well as treatment of them. They learn the difference between steroidal and nonsteroidal anti-inflammatory agents, their drug actions and side effects. The course also covers symptoms of asthma and classification of drugs used to treat asthma.

MODULE VII PHT 701 CPR AND FIRST AID

Prerequisites: None.

Total clock hours: 20

Completing this course enables the student to become certified by the American Heart Association in First Aid and CPR. Cards of validation are issued to each student that completes this course. A certified instructor trains students to perform First Aid and CPR using a hands-on approach.

MODULE VII PHT 702 CAREER DEVELOPMENT

Prerequisites: None.

Total clock hours: 20

The objective of this course is to assist the student in developing the skills and tools for career planning. Actual employment is the goal of this exposure. The objectives include the assessment of the student's own skills and application of these skills in a competitive market environment. The student comes to understand the dress, attitude, and interview skills necessary to stand out from the "crowd" and succeed in being hired for a desired job.

PHT 110, 210, 310, 410, 510, 610, 710 PHARMACY CALCULATION (integrated throughout courses)

Prerequisites: None.

Total clock hours: 140 (20 per course)

This course is designed to teach the essential mathematical concepts and skills used on the job by a pharmacy technician. Basic skills in mathematics are required for understanding and performing drug dose calculations and drug preparation, and this comprehensive course offers expanded coverage of basic skill reviews on fractions and percentages. The course includes intensive practice in pharmacy math calculations, conversions, measurements, and applications of equations including calculations required for the usual dosages and solution preparations.

MODULE VIII PHT 800 EXTERNSHIP

Prerequisites: Modules I through VII

Total clock hours: 160

The extern is "immersed" in a real pharmacy working environment. This environment may be a hospital or a retail environment based on the availability of a site and the preference of the extern for that type of practice. In this "real world" environment the student learns to deal with the day-to-day events in the "pharmacy world." Here the student gains invaluable experience and confidence in his/her professional and interpersonal ability.

PHT SKILLS LABORATORY

The campus skills laboratory is designed to provide students with assignments to learn the many skills necessary for pharmacy. Skills should be practiced in the skills laboratory prior to providing skills in the externship settings.

All Pharmacy Technician students are permitted to use the skills lab with their assigned instructors. Food and drinks are not allowed inside the skills laboratory.

All supplies should be handled with care and replaced in their storage areas after use. Items requiring replacement or reordering should be reported to the instructor daily or as needed basis.

All students are to participate in the maintenance of the campus skills lab.

Students are to wear their uniforms while working in the skills lab. Shoes should be closed toe, low-heeled and clothing should be safe without strings or ties that may become tangled and cause harm to the student or to others.

Always be considerate of others when working in the skills lab.

PHT LAB/EXTERNSHIP EVALUATION METHOD

The Pharmacy Technician program contains some courses that consider lab performance as one of the components of the course final grade.

Lab and externship performance are evaluated on a “pass/fail” designation, based upon successful completion of the lab objectives.

Students with a “fail” grade in any of the skills practiced will meet with the instructor and/or director of the program and receive a plan for improvement which may include but is not limited to:

1. Special assignments in the content area
2. Individual/group tutorial in the campus skills lab

During the externship, students will be visited on-site at the midpoint and a final evaluation will be conducted at the end of externship.

Completion of the externship module

Successful completion of the externship module requires:

- a pass grade on the final evaluation by the PhT program faculty
- completion of all required 160 hours

PHT EQUIPMENT AND MATERIALS

- Beaker
- Bin Wire Change
- Brush Beaker
- Caddy Hanging Bags
- Capsules
- Cash Register
- Compounding Tools
- Computers
- Counter Top w/ Cabinets
- Crash Cart
- Crimper
- De-Crimper
- Filter Syringes
- Gloves
- Graduated Cylinder
- Holder Suppository Shell
- Hotplate
- Label Dispenser
- Laminar Flow Hood
- Lockbox for Narcotics
- Masks
- Medcarts
- Medication Bottles
- Ointment Slab Glass
- Open Shelf for Medications
- Overhead Cabinets for Supplies
- Overhead Projector
- Phrase Date Stamp
- Pill Counting Trays
- Pill Crusher
- Pill Cutter
- Plastic Basket
- Porcelain/Glass Mortar and Pestle Sets
- Printer
- Rack Filling
- Refrigerator
- Roller Pressure
- Rx Vial Opener
- Sharps Container
- Tongs for Beaker
- Triple Beam Scale

Books:

- *Mosby's Pharmacy Technician: Principles & Practice*
- *Workbook for Mosby's Pharmacy Technician: Principles & Practice*
- *Math Calculations for Pharmacy Technicians*
- *Certification Review for Pharmacy Technicians*
- *Drug Quick Reference Pocket Guide*
- *Pharmacology Memory Note Cards*