

College Curriculum Committee Meeting Agenda
Tuesday, December 1, 2020
2:00 p.m. – 3:30 p.m.
Meeting will be held virtually via ConferZoom

Item	Time*	Action	Attachment(s)	Presenter(s)
1. Minutes: November 17, 2020	5 min.	Action	#12/1/20-1	Kuehnl
2. Report Out from Division Reps	5 min.	Discussion		All
3. Public Comment on Items Not on Agenda (CCC cannot discuss or take action)	5 min.	Information		
4. Announcements a. New Course Proposal b. Foothill GE Deadline c. Credit for Prior Learning	10 min.	Information	#12/1/20-2	CCC Team
5. New Program Application: Basic Pharmacy Technician CA	10 min.	2nd Read/ Action	#12/1/20-3	Kuehnl
6. New Program Application: Pharmacy Assistant (Aide/Clerk) CA		2nd Read/ Action	#12/1/20-4	Kuehnl
7. New Program Application: Air Conditioning Mechanic CA		2nd Read/ Action	#12/1/20-5	Kuehnl
8. New Program Application: Test, Adjust and Balancing (TAB) Technician CA		2nd Read/ Action	#12/1/20-6	Kuehnl
9. Adding Department FYI Notification to COR Workflow in CourseLeaf	10 min.	Discussion		Vanatta
10. Equity in our Curriculum	20 min.	Discussion		Kuehnl
11. Ad Hoc Groups	20 min.	Discussion	#12/1/20-7-8	Kuehnl
12. Good of the Order	5 min.			Kuehnl
13. Adjournment				Kuehnl

**Times listed are approximate*

Attachments:

- #12/1/20-1 Draft Minutes: November 17, 2020
- #12/1/20-2 New Course Proposal: HLTH 101
- #12/1/20-3 New Program Application: Basic Pharmacy Technician Certificate of Achievement
- #12/1/20-4 New Program Application: Pharmacy Assistant (Aide/Clerk) Certificate of Achievement
- #12/1/20-5 New Program Application: Air Conditioning Mechanic Certificate of Achievement
- #12/1/20-6 New Program Application: Test, Adjust and Balancing (TAB) Technician Certificate of Achievement
- #12/1/20-7 Proposal to Create New Ad Hoc Committee: Curriculum Best Practices
- #12/1/20-8 Proposal to Create New Ad Hoc Committee: Foothill General Education Process

2020-2021 Curriculum Committee Meetings:

<u>Fall 2020 Quarter</u>	<u>Winter 2021 Quarter</u>	<u>Spring 2021 Quarter</u>
10/6/20	1/19/21	4/20/21
10/20/20	2/2/21	5/4/21
11/3/20	2/16/21	5/18/21
11/17/20	3/2/21	6/1/21
12/1/20	3/16/21	6/15/21

Standing reminder: Items for inclusion on the CCC agenda are due no later than one week before the meeting.

2020-2021 Curriculum Deadlines:

12/1/20	Deadline to submit courses to CSU for CSU GE approval (Articulation Office).
12/1/20	Deadline to submit courses to UC/CSU for IGETC approval (Articulation Office).
2/16/21	Deadline to submit local GE applications for 2021-22 catalog (Faculty/Divisions).
TBD	Curriculum Sheet updates for 2021-22 catalog (Faculty/Divisions).
6/1/21	Deadline to submit new/revised courses to UCOP for UC transferability (Articulation Office).
TBD	COR/Title 5 updates for 2022-23 catalog (Faculty/Divisions).
Ongoing	Submission of courses for C-ID approval and course-to-course articulation with individual colleges and universities (Articulation Office).

Distribution:

Micaela Agyare (LIBR), Chris Allen (Dean, APPR), Ben Armerding (LA), Rachelle Campbell (BH), Zachary Cembellin (PSME), Anthony Cervantes (Dean, Enrollment Services), Mark Ferrer (SRC), Owen Flannery (KA), Valerie Fong (Interim Dean—LA), Marnie Francisco (PSME), Evan Gilstrap (Articulation Officer), Hilary Gomes (FA), Allison Herman (LA), Kurt Hueg (Administrator Co-Chair), Maritza Jackson Sandoval (CNSL), Eric Kuehl (Faculty Co-Chair), Andy Lee (CNSL), Debbie Lee (Acting Dean—FA & KA), Laurence Lew (BSS), Kristy Lisle (VP Instruction), Don Mac Neil (KA), Kathryn Maurer (AS President), Kent McGee (Evaluations), Michelle McNeary (LA), Ché Meneses (FA), Brian Murphy (APPR), Teresa Ong (AVP Workforce), Ron Painter (PSME), Kas Pereira (BSS), Katy Ripp (KA), Lisa Schultheis (BH), Ram Subramaniam (Dean—BH & PSME), Mary Vanatta (Curriculum Coordinator), Priya Vasu (ASFC), Anand Venkataraman (PSME)

COLLEGE CURRICULUM COMMITTEE

Committee Members – 2020-21

Meeting Date: 12/1/20Co-Chairs (2)

<input checked="" type="checkbox"/>	Eric Kuehnl	7479	Vice President, Academic Senate (tiebreaker vote only)	kuehneric@fhda.edu
<input checked="" type="checkbox"/>	Kurt Hueg	7179	Interim Associate Vice-President of Instruction	huegkurt@fhda.edu

Voting Membership (1 vote per division)

<input checked="" type="checkbox"/>	Micaela Agyare	7086	Library	agyaremicaela@fhda.edu
<input checked="" type="checkbox"/>	Ben Armerding	7453	LA	armerdingbenjamin@fhda.edu
<input type="checkbox"/>	Rachelle Campbell	7469	BH	campbellrachelle@fhda.edu
<input checked="" type="checkbox"/>	Zachary Cembellin	7383	PSME	cembellinzachary@fhda.edu
<input checked="" type="checkbox"/>	Mark Ferrer		SRC	ferrermark@fhda.edu
<input type="checkbox"/>	Owen Flannery	7213	KA	flanneryowen@fhda.edu
<input checked="" type="checkbox"/>	Valerie Fong	7135	Interim Dean—LA	fongvalerie@fhda.edu
<input checked="" type="checkbox"/>	Marnie Francisco	7420	PSME	franciscomarnie@fhda.edu
<input checked="" type="checkbox"/>	Evan Gilstrap	7675	Articulation	gilstrapevan@fhda.edu
<input checked="" type="checkbox"/>	Hilary Gomes	7585	FA	gomeshilary@fhda.edu
<input checked="" type="checkbox"/>	Allison Herman	7460	LA	hermanallison@fhda.edu
<input checked="" type="checkbox"/>	Maritza Jackson Sandoval	7409	CNSL	jacksonsandovalmaritza@fhda.edu
<input checked="" type="checkbox"/>	Andy Lee	7783	CNSL	leeandrew@fhda.edu
<input checked="" type="checkbox"/>	Debbie Lee	7497	Acting Dean—FA, KA	leedebbie@fhda.edu
<input checked="" type="checkbox"/>	Laurence Lew	6138	BSS	lewlaurence@fhda.edu
<input checked="" type="checkbox"/>	Don Mac Neil	7248	KA	macneildon@fhda.edu
<input checked="" type="checkbox"/>	Ché Meneses	7015	FA	menesesche@fhda.edu
<input checked="" type="checkbox"/>	Brian Murphy		APPR	brian@pttc.edu
<input checked="" type="checkbox"/>	Ron Painter		PSME	painterron@fhda.edu
<input type="checkbox"/>	Kas Pereira	7319	BSS	pereiracassandra@fhda.edu
<input checked="" type="checkbox"/>	Lisa Schultheis	7780	BH	schultheislisa@fhda.edu
<input checked="" type="checkbox"/>	Anand Venkataraman	7495	PSME	venkataramananand@fhda.edu

Non-Voting Membership (4)

<input checked="" type="checkbox"/>	Priya Vasu		ASFC Rep.	asfc.priyav@gmail.com
<input checked="" type="checkbox"/>	Mary Vanatta	7439	Curr. Coordinator	vanattamary@fhda.edu
<input type="checkbox"/>	Kent McGee	7298	Evaluations	mcgeekent@fhda.edu
<input type="checkbox"/>			SLO Coordinator	

Visitors

Chris Allen, Anthony Cervantes, Michelle McNeary, Teresa Ong, Kella Svetich

**College Curriculum Committee
Meeting Minutes
Tuesday, November 17, 2020
2:00 p.m. – 3:30 p.m.
Meeting held virtually via ConferZoom**

Item	Discussion
1. Minutes: November 3, 2020	Approved by consensus.
2. Report Out from Division Reps	<p>Speaker: All SRC: Working on Distance Learning Addendum forms.</p> <p>PSME: Working on DL Addendum forms.</p> <p>Library: Leganto reading list pilot—contact rep if interested in participating.</p> <p>Language Arts: Working on DL Addendum forms. Ethnic Studies steering committee developing curriculum—plan to submit for CSU GE Areas D & F. If faculty are interested in being involved, reach out to steering committee as soon as possible.</p> <p>Kinesiology: Working on DL Addendum forms.</p> <p>Fine Arts: Working on DL Addendum forms.</p> <p>Counseling: No updates to report.</p> <p>BSS: Working on DL Addendum forms.</p> <p>Bio Health: Working on DL Addendum forms. Creating new Community Health Worker program.</p> <p>Apprenticeship: Working on DL Addendum forms.</p> <p>Vanatta mentioned confusion from some divisions regarding first batch of DL Addendum submissions; clarified not all courses need submitted at this time, only those scheduled for winter 2021 that do not have prior DL approval. If you're unsure if a course needs to be submitted, email Vanatta.</p>
3. Public Comment on Items Not on Agenda	No comments.
4. Announcements a. New Course Proposals b. ASCCC Fall Plenary Update c. CCC Website Changes	<p>Speakers: CCC Team The following proposals were presented: ETHN 51, 52, 53, 54, 55. Please share with your constituents.</p> <p>Final adopted resolutions list from plenary. Kuehnl noted particular topics discussed at joint Academic Senate meeting with De Anza: 3.01 Support the Anti-Racism Pledge; 9.03 Ethnic Studies Graduation Requirement; 9.04 Clarify and Strengthen the Ethnic Studies General Education Requirement. Gilstrap noted 9.03 & 9.04 suggest we will need to have Ethnic Studies graduation requirement for students starting in fall 2021; asked if this means we will need to add ES requirement to Foothill GE. D. Lee noted ES steering committee planning to apply for Foothill GE Humanities and US Cultures & Communities areas. Kuehnl clarified question is whether we will need to add separate ES area/requirement to Foothill GE. Language Arts rep believes this is unclear—asked if Kuehnl could follow up for clarification; Kuehnl will follow up with AS President Kathryn Maurer (attended plenary).</p> <p>Vanatta shared changes: two pages (Forms, Guides & Flow Charts; Foothill</p>

<p>d. Communication Studies CA Approvals</p> <p>e. CSU GE & IGETC Deadline</p> <p>f. COR Exception Process (Fast-tracking) Clarification</p>	<p>& Other Resource Links) replaced with one new page, Curriculum Process Resources—includes all info about course and program creation processes. Previous pages will redirect. New CourseLeaf Resources page.</p> <p>Vanatta shared that the CCCCCO has approved the Communication Studies I & II Certificates of Achievement!</p> <p>Gilstrap reminded the group of the upcoming Dec. 1 deadline for CSU GE & IGETC submissions. Exception is new CSU GE Area F—Feb. deadline.</p> <p>Kuehnl reminded the group of our process to request deadline exceptions (was attached to agenda). Hueg noted there are reasons to request exceptions but also noted that our regular process exists for a reason; there does need to be a rationale. Vanatta noted uniqueness of recent situation, being in between COR systems, but reminded reps that request should not be submitted until COR has been submitted to her (Review1 status).</p>
<p>5. New Subject Code: ETHN</p>	<p>Speaker: Eric Kuehnl Language Arts has approved the creation of a new subject code of ETHN (Ethnic Studies). This code will go into effect for the 2021-22 catalog.</p>
<p>6. New Program Application: Basic Pharmacy Technician CA</p>	<p>Speaker: Eric Kuehnl First read of new Basic Pharmacy Technician Certificate of Achievement.</p> <p>PSME rep asked general question regarding process, expressing specific concerns related to this Feedback Form and exchange between faculty and Equity & Education. Noted faculty must have spent hours responding to E&E's questions; concerned that faculty felt they had to justify program in this way. D. Lee believes there needs to be a way for new programs to be reviewed and for feedback to be given. Hueg noted concerns with Feedback Form have been posed numerous times, in various forums; point of form is to notify governance groups that programs are being created. Agreed that formal discussion needs to occur regarding Feedback Form, to gain clarity. PSME rep believes this example (of faculty feeling they must spend hours to respond to questions) does not reflect well on this part of the program creation process. Hueg noted governance groups do not approve curriculum and cannot stop new programs coming to CCC. Believes good to create spaces for dialogue and questions, but faculty should not feel put on the spot to justify new programs to those groups. Agreed with need for clarity on this part of the process.</p> <p>Language Arts rep noted spirit of process is for governance groups to provide feedback related to areas of expertise; when process was created, insistence was that groups' feedback unrelated to any approval. Kuehnl believes Feedback Form is clear that groups are not approving/rejecting programs; suggested this is more of an opportunity to clear things up regarding purpose of the form. Ong noted would be helpful for each group to provide details on their own process for review and feedback; each group does things differently, which can be confusing for faculty.</p> <p>Second read and possible action will occur at next meeting.</p>
<p>7. New Program Application: Pharmacy Assistant (Aide/Clerk) CA</p>	<p>Speaker: Eric Kuehnl First read of new Pharmacy Assistant (Aide/Clerk) Certificate of Achievement. No comments.</p> <p>Second read and possible action will occur at next meeting.</p>
<p>8. New Program Application: Air Conditioning Mechanic CA</p>	<p>Speaker: Eric Kuehnl First read of new Air Conditioning Mechanic Certificate of Achievement. No comments.</p> <p>Second read and possible action will occur at next meeting.</p>

<p>9. New Program Application: Test, Adjust, and Balancing (TAB) Technician CA</p>	<p>Speaker: Eric Kuehnl First read of new Test, Adjust, and Balancing (TAB) Technician Certificate of Achievement. No comments.</p> <p>Second read and possible action will occur at next meeting.</p>
<p>10. Credit for Prior Learning</p>	<p>Speaker: Eric Kuehnl Continuation of discussion from previous meeting, regarding awarding of credit for experience outside of the classroom, and related CCCCCO mandate. Gilstrap mentioned Credit for Prior Learning (CPL) will not initially be helpful for students in terms of transfer, as UC and CSU not currently planning to accept new types of CPL. Noted that CPL must be annotated on student's transcript when used. Suggested we begin with CTE and/or non-transferable courses before moving on to transferable courses. Clarified that UC and CSU will still accept AP, IB, and credit by exam, but no additional CPL types. Ong asked Gilstrap about courses, like ACTG 1A, which are both CTE and transferable—Gilstrap noted importance of counselors' conversations with students, in such situations. If student not at all interested in transferring, CPL could be a good route, but if there is any interest in transferring, CPL should not be used for such a course. Kuehnl asked for clarification, regarding credit by exam—Gilstrap noted that nothing has changed; our current policy is still valid. New aspects of CPL are things such as industry certifications, portfolio review, etc.</p> <p>PSME rep agreed with Gilstrap's suggestion to start with CTE and non-transferable courses, noting C S courses could apply. Counseling rep mentioned that many CTE courses are CSU transferable, which complicates things; Gilstrap agreed will be a challenge and will heavily rely on counselors to advise students.</p> <p>Kuehnl mentioned discussions at Academic Senate about interest level in divisions, noting very few courses currently offered as credit by exam. Questions have been posed regarding faculty compensation; putting that aside, asked reps for gauge of interest level among faculty. Noted concern regarding portfolio review-based courses, and need to develop rubrics for such review. Believes could be implemented well for MTEC courses, both those with final exams and using portfolio review method. Fine Arts rep believes students would be interested in portfolio review method (e.g., self-taught); echoed need to create rubric and believes portfolio review would be time-consuming and require compensation. Counseling rep mentioned current processes for academic renewal and replacement of substandard grades—student must confirm on form that certain transfer institutions may not accept courses using this process. Similarly, form/process for CPL can clearly indicate to student that course may not be transferable, not only to UC/CSU but potentially any transfer institution.</p> <p>Other Fine Arts rep mentioned Guided Pathways, particularly loss of momentum, and need to meld industry skills with curriculum. Believes if students can see connection between their skills and what they're learning in classroom, can help prevent some loss of momentum. Sees crossover between equity work, Guided Pathways, and curriculum. Believes CPL can help address certain achievement gaps. Mentioned Education Revolution and need to understand entire spectrum of students, not just those who want to go on to obtain a bachelor degree or even an associate degree.</p> <p>Kuehnl noted many questions will need to be addressed, regarding which depts. this will work best for, compensation for faculty, best way to address students' questions (Counseling and discipline faculty). Will likely bring topic back for further discussion; some aspects need to wait for action by other groups before discussion at CCC will be useful. Mentioned attachments to</p>

	agenda, incl. FHDA district draft Administrative Procedures and Board Policy—Academic Senate has given their blessing.
11. Equity in our Curriculum	<p>Speaker: Eric Kuehnl Now that Ethnic Studies curriculum development is moving forward, Kuehnl would like to pivot and look at what CCC can do to address equity throughout our curriculum. Noted interest from both students and faculty. Thinking of using a survey to brainstorm ways to move forward with how to best address this; for example, adding equity as a mechanical part of the curriculum process, bringing in speaker(s) to address equity and decolonization of our existing curriculum.</p> <p>Fine Arts rep shared recent experience—received survey to review certain ART courses to see if they meet culturally-responsible teaching; recalls being asked to review course content, textbooks. Believes if the state is already thinking about improving courses in this regard, we should also be. Believes a basic survey to use to review courses would be very helpful. Suggested review be done at the dept. level, collaboratively, and not by individual faculty. Bio Health rep noted working groups formed in Biology dept., to address GE courses, major courses, and some course series (groups open to all faculty in dept., including part-time); reviewing complete CORs to discuss what changes can be made. Approach has been very helpful in identifying changes. Noted dept. chair has deep understanding of these issues, which has been very helpful. Kuehnl asked if chair might be open to speaking at upcoming CCC meeting—rep will reach out. Rep noted open letter from students—helped drive dept.'s interest in reviewing CORs.</p> <p>Other Fine Arts rep mentioned Gladeo and Handshake—similar to LinkedIn, presenting career stories from people of color. Mentioned recognizing different learning styles, and brainstorming how to present course material in different ways, not just in linear, Euro-centric style. Acknowledged this will be easier for certain disciplines than others, but believes that all depts. can explore. Mentioned short-term steps, such as bringing in diverse guest speakers to classes. Fong noted two different ways to discuss equity in curriculum: course content and pedagogical approach in teaching—valuable for CCC to consider both aspects.</p> <p>Kuehnl will distribute survey to help gauge interest/priority level of ideas; please reach out to him if you have ideas for items to include in survey. Will be an organic process, but survey will help create a starting point.</p>
12. Good of the Order	Hueg reminded everyone to attend a CourseLeaf training. Mentioned college-wide effort around Student Learning Outcomes (documentation and assessment); working with faculty to address. Noted we are required to document for mid-term report.
13. Adjournment	3:26 PM

Attendees: Micaela Agyare (LIBR), Chris Allen (Dean, APPR), Ben Armerding (LA), Zach Cembellin (PSME), Anthony Cervantes (Dean, Enrollment Services), Mark Ferrer (SRC), Valerie Fong (Acting Dean, LA), Marnie Francisco (PSME), Evan Gilstrap (Articulation Officer), Hilary Gomes (FA), Allison Herman (LA), Kurt Hueg (Administrator Co-Chair), Maritza Jackson Sandoval (CNSL), Eric Kuehnl (Faculty Co-Chair), Andy Lee (CNSL), Debbie Lee (Acting Dean, FA & KA), Laurence Lew (BSS), Don Mac Neal (KA), Michelle McNeary (LA), Ché Meneses (FA), Abhiraj Muhar (ASFC President), Teresa Ong (AVP Workforce), Ron Painter (PSME), Kas Pereira (BSS), Lisa Schultheis (BH), Mary Vanatta (Curriculum Coordinator), Priya Vasu (ASFC), Anand Venkataraman (PSME)

Minutes Recorded by: M. Vanatta

Course Change Request

New Course Proposal

Date Submitted: 11/24/20 11:27 am

Viewing: **HLTH F101. : INTRODUCTION TO COMMUNITY HEALTH WORK**

Last edit: 11/24/20 11:43 am

Changes proposed by: Rebecca Ryan (20315667)

In Workflow

1. **1BH Curriculum Rep**
2. **Curriculum Coordinator**
3. **Activation**

Course Proposal Form

Faculty Author Rebecca Ryan

Effective Term Summer 2022

Subject Health (HLTH) Course Number F101.

Department Health (HLTH)

Division Biological and Health Sciences (1BH)

Units 5

Hours 60

Course Title INTRODUCTION TO COMMUNITY HEALTH WORK

Short Title

Proposed Transferability None

Proposed Description and Requisites: Introduction to Community Health Work provides an overview of skills related to the role of a community health worker. Students will learn skills related to effective health promotion/outreach, health interviewing, patient eligibility navigation, pandemic related navigation, and cultural humility practices.

Proposed Discipline Health, located in the Biological and Health Sciences division

To which Degree(s) or Certificate(s) would this course potentially be added? Community Health Worker certificate program (does not yet exist; will be added in order after class approved)

Are there any other departments that may be impacted from the addition of this course? No

Comments & Other Relevant Information for Discussion: n/a

Reviewer Comments

Approval Path

1. 11/24/20 11:44 am
Lisa Schultheis (schultheisliisa):
Approved for 1BH Curriculum Rep
2. 11/24/20 2:33 pm
Mary Vanatta (vanattamary):
Approved for Curriculum Coordinator

Key: 8703

[Preview Bridge](#)
[Why Did This Not Sync?](#)

Foothill College
Credit Program Narrative
Certificate of Achievement in Basic Pharmacy Technician

Item 1. Program Goals and Objectives

The Certificate of Achievement in Basic Pharmacy Technician is a short term, part-time, stackable certificate, which serves as a direct CTE pathway for high school and adult students to pursue careers within the pharmacy profession. The academic curriculum, competency-based training, and transferrable skills development will result in skills and credentials necessary to secure living wage skilled positions in the pharmacy profession with the potential for promotion and opportunities for future educational advancement in pharmacy or any health care related career.

This is a low barrier, part-time CTE pathway program which empowers students to achieve their goals as members of the health care workforce beginning either in high school or as an adult. The “stackable” series of certificates provides equitable educational and career advancement opportunities to ensure all California student populations reach their full potential while earning a living wage that can eventually lead to a high wage position.

This lower unit offering increases access and provides flexibility for students with financial and schedule limitations. The part-time aspect of this program is advantageous for adult students who would like a career change and are unable to participate in the full-time, 6-month Accredited Entry or Advanced Level Pharmacy Technician Program.

Students will acquire, develop, and strengthen essential transferrable skills required for effective collaboration between all health care professionals and for their success in the health care field. This includes communication, teamwork, ethics, professionalism, stress and time management, decision-making, building resilience, identifying learning strategies, demonstrating effective study skills, and goal setting—all essential for productive work habits and attitudes relevant in health care careers.

Students will acquire knowledge and demonstrate competency in the following disciplines: basic anatomy and physiology, medical terminology, pharmaceutical abbreviations, pharmaceutical preparations and medication names, pharmacy practice, pharmaceutical compounding, various drug formulations, complementary and alternative medicine, pharmaceutical calculations used in community practice, pharmacy law, HIPAA, pharmacology including diseases and medications used to treat conditions affecting body systems.

Students will complete 130 hours of clinical externship, demonstrating and practicing their knowledge and skills acquired in a didactic/simulation setting. Competency will be evaluated by a preceptor at the site. Students will participate in a comprehensive review of pharmacy technician technical and didactic competencies to prepare them for passing the national certification exams: either the Pharmacy Technician Certification Exam (PTCE) or the ExCPT Exam. Students will complete the California Pharmacy Technician State License Application and register for either national board examination.

Program Learning Outcomes:

- Fundamental Knowledge, Critical Thinking and Student Attitude: Upon completion of the Basic Pharmacy Technician course work, students will demonstrate knowledge, skills, and values necessary to practice as a capable and competent Entry Level Pharmacy Technician in a community pharmacy setting and/or pursue other entry-level allied health professions.
- Clinical Skills Competency: Upon completion of the Basic Pharmacy Technician course work, students will demonstrate competency with entry-level clinical skills required of an Entry Level Pharmacy Technician in accordance to California Board of Pharmacy and pharmacy industry standards.

Item 2. Catalog Description

The Certificate of Achievement in Basic Pharmacy Technician is a nine (9) month, part-time, stackable program, which serves as a direct CTE pathway for students to pursue careers within the pharmacy profession and various entry-level allied health profession. The academic curriculum, competency-based training, and transferrable skills development will result in skills and credentials necessary to secure living wage skilled positions in the pharmacy profession with the potential for promotion and opportunities for future educational advancement in pharmacy or any health care related career. Students must be 18 years old and possess a high school diploma/GED or equivalent to participate in externship and apply for a license with the California Board of Pharmacy.

Additional details not included as part of the catalog description:

Program requirements: Any motivated student interested in the pharmacy profession or entering any health care career. Must be 18 years old and have a high school diploma/GED or equivalent.

Prerequisite skills: Satisfactory grades in Algebra 1, High School Biology, and English.

Enrollment limitations: Based on the number of students the dual enrollment facility (off-site) can accommodate and Foothill College lab/classroom size. This is a cohort-based program with the ideal section size of 24 students.

Other information relevant to program goals: This section applies to students who obtain a Certificate of Achievement in Pharmacy Assistant (Aide/Clerk) first through dual enrollment pathway and elect to participate in the stackable Basic Pharmacy Technician certificate program: Together, in partnership with the Boys and Girls Club of America and the Department of Veteran’s Affairs VITAL Program (VA Initiative in Job TraininEd And Learning), we proactively provide academic, basic needs, financial, technology, and additional learning support services to positively affect student success and retention. The academic curriculum and competency-based training will result in the skills and credentials necessary for the student’s placement into skilled positions within the VA or other Community Pharmacy positions with the potential for promotion and educational subsidies.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (17 units)	PHT 101	Pharmacy Careers A	4	Year 1, Fall
	PHT 102	Pharmacy Careers B	4	Year 1, Winter
	PHT 103	Pharmacy Careers C	4	Year 1, Win/Spr
	PHT 60	Retail Clinical	4	Year 1, Spring
	PHT 63	Pharmacy Technician Certification Exam (PTCE) Review	1	Year 1, Spring
Restricted Electives (select one course)	AHS 50A	Introduction to Allied Health Programs	1.5	Year 1, Fall
	AHS 51	Health Careers Exploration	1.5	Year 1, Fall

TOTAL UNITS: 18.5 units

Proposed Sequence:

Year 1, Fall = 5.5 units

Year 1, Winter = 4 units

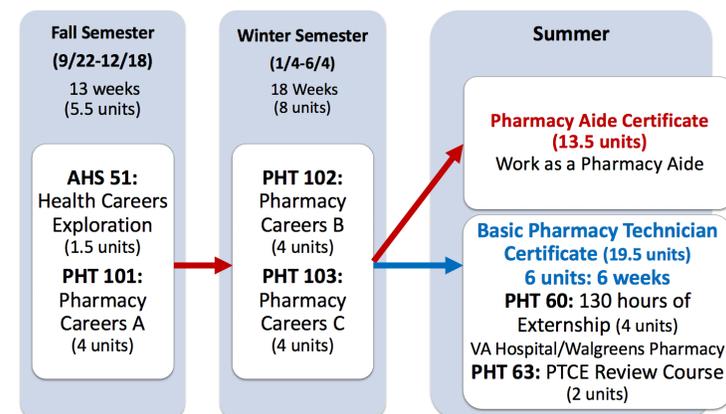
Year 1, Winter/Spring = 4 units (term spanning)

Year 1, Spring/Early Summer = 5 units

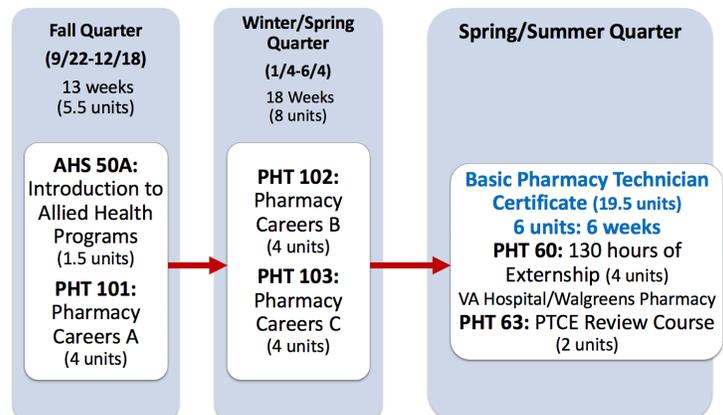
TOTAL UNITS: 18.5 units

Dual Enrollment "stackable" Pharmacy Assistant (Aide/Clerk) and Basic Pharmacy Technician Certificates*

*additional 6 units only



Part-time Basic Pharmacy Technician Program (Adult Student Cohort)



Item 4. Master Planning

The Certificate of Achievement in Basic Pharmacy Technician is a part-time adult program which aligns with Foothill’s Mission and Master Planning on multiple levels. This low barrier, part-time, CTE pathway program empowers students to achieve their goals as members of the health care workforce beginning in high school through adulthood. It is part of a “stackable” series of certificates which provides equitable educational and career advancement opportunities to ensure all California student populations reach their full potential all while earning a living wage that leads to a high wage position.

The Pharmacy Technology Department mission is guided by the same tenants as the college: honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. We also foster five core teachings as student progress through the program: respect, unity, ownership, curiosity, and *Ganas*.

This innovative program fits the college’s strategy and focus on equity as it promotes direct and ease of access to educational and career exposure opportunities for all students. High school students who obtained a Pharmacy Assistant certificate prior to continuing their education have extra support services through Foothill’s partnership with the Boys and Girls Club of America and the Department of Veteran’s Affairs VITAL Program (VA In job Training Education And Learning). Pharmacy Assistant certificate recipients will continue to receive academic, basic needs, financial, technology, and additional learning support services to positively affect student success and retention while obtaining the Basic Pharmacy Technician certificate. The collaboration of BGCP, VITALS, and the Foothill College PHT Program is a model of education and training for the next generation of health care workforce and leadership.

The academic curriculum and competency-based training will result in the skills and credentials necessary for the student’s placement into skilled positions within the VA or other Community Pharmacy positions with the potential for promotion and educational subsidies. It also addresses the paucity of options for underserved, low income students by preparing them to work and advance professionally within the industry and/or pursue college at a later time. The flexibility and affordability of a part-time program increases student access. For the “adult student” the total cost for this certificate (tuition/books/student fees) is approximately \$725.00 (\$240.00 per quarter). For a “dual enrollment” student, the cost is only for 6 additional units plus student fees totaling \$160.00.

Listed below are the specific *Educational Master Plan Goals* this program addresses. It truly exemplifies Foothill College's culture of innovation and problem solving, with the emphasis on eliminating disproportionate impact among student groups as it meets all but one goal:

Create a culture of equity that promotes student success, particularly for underserved students.

- Implement activities to improve achievement of student outcomes among those population groups experiencing disproportionate impact.
- Reduce barriers and facilitate students' ease of access across the District and region.
- Enhance support for online quality and growth for instruction and student services.
- Collaborate with K-12, adult education and four-year institutions in ways that serve students and society.
- Partner with business and industry to prepare students for the workforce.

Strengthen a sense of community and commitment to the College's mission; expand participation from all constituencies in shared governance.

- Encourage student participation in leadership and activities outside the classroom (including service/work-based learning) that engages students with the College and the community.
- Provide effective onboarding, support and professional development for all college employees.
- Encourage employee participation in leadership and activities that engages them with the College and the community.
- Promote consistent and clear communication in order to create a more informed, cohesive and engaged community.
- Increase lifelong learning opportunities for our community.
- Promote decision-making that respects the diverse needs of the entire college community.

Recognize and support a campus culture that values ongoing improvement and stewardship of resources.

- Increase advocacy at the state level, increase grants and private donations to secure stable and sustainable funding, and manage college resources strategically.
- Employ data-driven decision-making.

Higher Education in California—Vision for Success

SB 1070 and AB 288 emphasizes the development and strengthening of CTE pathways between high schools and community colleges to accomplish statewide objectives to meet under-served students in California. The Certificate of Achievement in Basic Pharmacy Technician meets several of California's Higher Education Vision for Success goals:

1. This pathway program meets future workforce demand in California, as analyzed by the Centers of Excellence for Labor Market Research. It increases the number of students annually who will acquire specific skill sets, certificates, associate degrees, and credentials that prepare them for an in-demand job. This goal is consistent with the recommendations of the California Strategic Workforce Development Plan. The scope

of education the students receives prepares them not only for careers in pharmacy, but serves as a foundation of knowledge applicable in all allied health professions.

2. This program increases the percent of exiting CTE students who report being employed in their field of study, Pharmacy Careers. This dual enrollment/part-time program ensures students receive the training and education needed to be successful in the field of pharmacy. Upon program completion, they can directly work as entry-level Pharmacy Technicians in a community pharmacy. This CTE pathway program prepares students for available jobs and supports students to find jobs in the pharmacy industry sector.
3. This program reduces equity gaps across all of the above measures through faster improvements among traditionally underrepresented student groups. Through the partnership of the Boys and Girls Club of America and the Department of Veterans Affairs VITAL Program, dual enrollment pathway students will have extra resources and support to help them succeed both in and outside of the classroom. This collaboration is the first in the nation and we believe is the model that will truly serve underrepresented student groups.
4. This program decreases the average number of units accumulated by students earning an associate degree in Pharmacy Technology. The revised ASHP/ACPE Accredited Advanced Pharmacy Technician Training Program is 40 units instead of 52 units. Students who elect to obtain an AS degree in Pharmacy Technology will only need to take their remaining GE requirements. This reduction of units-to-degree will help more students reach their educational goals sooner and at a lower cost.
5. Because of COVID-19, California has increased the capacity and responsiveness of community colleges to address the skill development needs of employers and dislocated and unemployed workers, incumbent workers, and new entrants to the workforce. The goal is to offer individuals accelerated career pathways that enable them to gain skills and transition from unemployment to re-employment quickly. This short, part-time, training program provides the competency-based training and skills necessary for individuals to re-enter the workforce as capable and competent pharmacy technicians. Re-employment within the pharmacy industry will be immediate due to the high demand and shortage of trained pharmacy technicians in the area (see attached LMI report).

Item 5. Enrollment and Completer Projections

24 students are enrolled in first cohort and we anticipate 24 to successfully complete the related Certificate of Achievement in Pharmacy Assistant (Aide/Clerk). The realistic projected program completion goal is 80% (19 students). For students to continue with the Certificate of Achievement in Basic Pharmacy Technician, they must be 18 years old and have received their high school diploma/GED. While our goal is for all 19 students to continue to this program, it will be dependent on how many students elect to immediately move forward with more education. We hope at least 10 will proceed with 6 more units of education to obtain the Certificate of Achievement in Basic Pharmacy Technician.

Because of COVID-19 limitations with instruction, we are offering this part-time Basic Pharmacy Technician training program for the 2020-21 academic year instead of our Advanced Pharmacy Technician program. This initial year, we project 15 adult students to complete the program. With the estimate of at least 10 dual enrollment students and 15 adult students, we will

have 25 students (or more) complete the Basic Pharmacy Technician program. The course sequencing is almost identical for the adult and dual enrollment cohorts; the difference is in the “support course” (restricted elective).

Adult students who applied to the Pharmacy Technician program have taken PHT 200L, the program prerequisite, and have confirmed Pharmacy Technology as their choice profession—for these students, AHS 51 is unnecessary. Instead, the adult student cohort will take AHS 50A. Both courses, AHS 50A and AHS 51, are 1.5 units and provide similar essential training and content needed for success in the health care profession.

Foothill College can offer the part-time Basic Pharmacy Technician program to adult students, limited to 24 students per section.

Since this is a cohort-based program, total enrollment will be dependent on regional high school districts offering this program to their students. The goal is to expand this program to surrounding high school regions; for example, San Jose, East Bay, etc. After 5 years, an increase in the number of regions that offer this cohort program will increase the number of total enrolled students by a factor of 24. For example, if there are two cohorts per year (Redwood City and San Jose school districts), we will have 48 enrolled students.

The total enrollment including both the adult student and dual enrollment student sections could be 48 students or more.

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
AHS 50A	Introduction to Allied Health Programs	6	166	7	180
AHS 51	Health Careers Exploration	1	29	1	34
PHT 63	Pharmacy Technician Certification Exam (PTCE) Review	1	26	1	17
PHT 60	Retail Clinical	1	26	1	17
PHT 101	Pharmacy Careers A	N/A	N/A	N/A	N/A
PHT 102	Pharmacy Careers B	N/A	N/A	N/A	N/A
PHT 103	Pharmacy Careers C	N/A	N/A	N/A	N/A

Item 6. Place of Program in Curriculum/Similar Programs

Foothill College does not currently have a CTE stackable Pharmacy pathway program with training beginning from high school, nor a part-time Basic Pharmacy Technician program. This new program increases access for both high school and adult students:

- High school students simultaneously obtain high school elective units and a certificate upon completion. They can choose to either enter the pharmacy workforce as a Pharmacy Assistant (Aide/Clerk) or continue their education with 6 additional units of course work (including 130 hours of externship) to obtain the Certificate of Achievement in Basic Pharmacy Technician* (stackable certificate).

- Adult students have access to a part-time program, which is advantageous for individuals who are unable to participate in the full-time Entry Level/Advanced Level Pharmacy Technician program.

**students must be 18 years old and possess a high school diploma/GED or equivalent to complete externship and California Board of Pharmacy licensing requirements.*

All students who complete this program will be eligible to apply for a Pharmacy Technician license with the California Board of Pharmacy. After working for an additional 370 hours as a Pharmacy Technician, they qualify to take the National Pharmacy Technician Certification Exam (PTCE) to become a Certified Pharmacy Technician.

Students can continue on the pathway to complete Foothill College's Advanced Level Pharmacy Technician training program and take additional GE courses to obtain an Associate in Science Degree in Pharmacy Technology. Finally, if students wish to become a Pharmacist, they can take all required pharmacy school prerequisites offered at Foothill College without having to attend a 4-year college/university. There are no other programs at Foothill College with a pathway beginning in high school that provide students numerous career and education opportunities within the pharmacy/health care profession.

The Complete Pharmacy Careers CTE Pathway:

Pharmacy Assistant (Aide/Clerk) ⇒ Basic or Entry Level Pharmacy Technician ⇒ Certified Pharmacy Technician ⇒ Advanced Level Pharmacy Technician ⇒ AS Degree in Pharmacy Technology ⇒ PharmD (Doctor of Pharmacy)

Item 7. Similar Programs at Other Colleges in Service Area

Foothill College is the only community college that offers a Pharmacy Technology program in our service area, Silicon Valley Sub-Region, issuing 33 awards on average annually (last 3 years) for the TOP Code of 1221.00 - Pharmacy Technology.

However, there are two community colleges in the Bay Region issuing 73 awards on average annually (last 3 years ending 2018-19): San Francisco (Mid-Peninsula) and Santa Rosa (North Bay). Additionally, there are six other Educational Institutions in the Bay Region issuing 131 awards on average annually (last 3 years ending 2016-17), and one other Educational Institution issuing 16 awards on average annually (last 3 years).

None of these other Educational Institutions are located in Foothill's service area. Most importantly, there are no dual enrollment pathway programs within Foothill College's service area that begin with the Pharmacy Assistant (Aide/Clerk) certificate and allow for students to attain a stackable part-time Basic Pharmacy Technician certificate.

Note: Mission College offers a Pharmacy Technician training program through Adult Education.

Table 7a. Awards on TOP 1221.00 - Pharmacy Technology in Bay Region

College	Sub-Region	Associates	Certificate Low Unit	Total
Foothill	Silicon Valley	15	18	33
San Francisco	Mid-Peninsula		19	19

Santa Rosa	North Bay	6	15	21
Total Bay Region		21	52	73
Total Silicon Valley Sub-Region		15	18	33

Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

Table 7b. Other Educational Institutions Awards on TOP 1221.00 - Pharmacy Technology in Bay Region

College	Sub-Region	Award <1 academic yr	Award 1<2 acad yrs	Award 2<4 acad yrs	Total
Bay Area Medical Academy	Mid-Peninsula			11	11
Carrington College-Pleasant Hill	East Bay	17	5		22
Carrington College-San Jose	Silicon Valley	11	5		16
Carrington College-San Leandro	East Bay	11	4		15
InterCoast Colleges-Fairfield	North Bay			15	15
Unitek College*	East Bay		52		52
Total Bay Region		39	66	26	131
Total Silicon Valley Sub-Region		11	5		16

Source: Data Mart

Note: The annual average for awards is 2014-15 to 2016-17.

*Unitek College has recently discontinued their Pharmacy Technology Program.

Additional Information Required for State Submission:

TOP Code: 1221.00 - Pharmacy Technology

Annual Completers: Anticipate 25 students the first year (15 adult college cohort and 10 dual enrollment cohort students). The goal is to increase the number of cohorts offered at various high school regions. An increase in the number of regions that offer this cohort program will increase the number of enrolled students by a factor of 24. For example, if there are 2 cohorts per year (Redwood City and San Jose), we will have 48 enrolled students, etc.

Net Annual Labor Demand: 939

Faculty Workload: PT course load is 0.305

New Faculty Positions: 1 part-time instructor

New Equipment: Textbooks, materials, supplies, consumable workbooks for 24 dual enrollment students = \$5000. Adult students: software

New/Remodeled Facilities: \$0.00 (dual enrollment off-site at Boys & Girls Club of the Peninsula). Use current PHT lab classroom for adult student cohort at Foothill College, which accommodates 24 students

Library Acquisitions: \$0.00

Gainful Employment: Yes

Program Review Date: Pharmacy Technology Comprehensive Program Review in Academic Year 2019-2020 (submitted December 2019; because of COVID-19 Shelter in Place, the college will finalize CPR results and findings in Fall 2020)

Distance Education: 0%

Pharmacy Aide Occupations Labor Market Information Report Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
June 2020

Recommendation

Based on all available data, there appears to be an **undersupply** of Pharmacy Aide workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 778 students in the Bay region and 161 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 1221.00-Pharmacy Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

Introduction

This report profiles Pharmacy Aide Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Foothill College.

- Pharmacy Aides (SOC 31-9095):** Record drugs delivered to the pharmacy, store incoming merchandise, and inform the supervisor of stock needs. May operate cash register and accept prescriptions for filling.
 Entry-Level Educational Requirement: High school *diploma or equivalent*
 Training Requirement: Short-term *on-the-job training*
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 45%
- Pharmacy Technicians (SOC 29-2052):** Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications according to prescription orders.
 Entry-Level Educational Requirement: High school *diploma or equivalent*
 Training Requirement: Moderate-term *on-the-job training*
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 56%

Occupational Demand

Table 1. Employment Outlook for Pharmacy Aide Occupations in Bay Region

Occupation	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Pharmacy Aides	1,945	1,820	-125	-6%	1,201	240	\$13.39	\$17.20
Pharmacy Technicians	8,026	8,409	383	5%	3,714	743	\$17.43	\$21.81
TOTAL	9,971	10,229	259	3%	4,915	983	\$16.64	\$20.91

Source: EMSI 2020.1

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Pharmacy Aide Occupations in Silicon Valley Sub-Region

Occupation	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Pharmacy Aides	354	316	-37	-11%	214	43	\$12.40	\$14.13
Pharmacy Technicians	1,931	1,977	46	2%	836	167	\$15.03	\$18.76
TOTAL	2,285	2,294	9	0%	1,049	210	\$14.63	\$18.04

Source: EMSI 2020.1

Silicon Valley Sub-Region includes Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region**Table 3. Number of Job Postings by Occupation for latest 12 months (June 2019 - May 2020)**

Occupation	Bay Region	Silicon Valley
Pharmacy Technicians	3,256	565
Pharmacy Aides	348	72
TOTAL	3,604	637

Source: Burning Glass

Table 4a. Top Job Titles for Pharmacy Aide Occupations for latest 12 months (June 2019 - May 2020) Bay Region

Common Title	Bay	Common Title	Bay
Pharmacy Technician	2,919	Technician	3
Certified Pharmacy Technician	261	Pharmacy Support Clerk	3
Pharmacy Cashier	163	Pharmacy Clerk, Delivery	3
Pharmacy Clerk	85	Pharmacy Clerk, Bilingual, Cantonese	3
Pharmacist	39	Pet Technician, Accommodation/Hotels Industry	3
Pharmacy Assistant	31	Coordinator, Order Entry	3
Data Entry Technician	19	Pt Pharmacy Technology Instructor	2
Prototyper IV	5	Production Technician	2
Project Technical Lead, Pharmacy	5	Pharmacy Technology Instructor	2
Entry Pharmacy Clerk	5	Pharmacy Clerk, Spanish, Public Speaking	2
Retail Clerk	4	Pharmacy Clerk, Mill	2
Pharmacy Coordinator	4	Medication Coordinator	2
Glassware Technician	4	Laboratory Glassware	2
Veterinary Technician	3	Food Pharmacy Coordinator	2

Table 4b. Top Job Titles for Pharmacy Aide Occupations for latest 12 months (June 2019 - May 2020) Silicon Valley Sub-Region

Common Title	Silicon Valley	Common Title	Silicon Valley
Pharmacy Technician	498	Pt Pharmacy Technology Instructor	2
Certified Pharmacy Technician	56	Pharmacy Clerk, Spanish, Public Speaking	2
Pharmacy Cashier	42	Laboratory Glassware	2
Pharmacist	11	Order Entry Coordinator, Entry	1
Pharmacy Clerk	9	Order Entry Coordinator	1
Pharmacy Assistant	7	Department Pharmacy Clerk, Veterinary, Outpatient, Healthcare Industry	1
Pharmacy Coordinator	4	Customer Service Technician	1

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Pharmacy Aide Workers in Bay Region

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2019)	Jobs in Industry (2022)	% Change (2019-24)	% Occupation Group in Industry (2019)
Pharmacies and Drug Stores (446110)	4,602	4,850	5%	49%
General Medical and Surgical Hospitals (622110)	859	969	13%	10%
Supermarkets and Other Grocery (except Convenience) Stores (445110)	867	879	1%	9%
HMO Medical Centers (621491)	245	443	81%	4%
Electronic Shopping and Mail-Order Houses (454110)	239	430	80%	4%
Hospitals (Local Government) (903622)	297	361	22%	4%
Warehouse Clubs and Supercenters (452311)	340	267	-21%	3%
Department Stores (452210)	388	223	-43%	2%
Drugs and Druggists' Sundries Merchant Wholesalers (424210)	58	127	119%	1%
Hospitals (State Government) (902622)	33	109	230%	1%
Offices of Physicians (except Mental Health Specialists) (621111)	152	107	-30%	1%

Source: EMSI 2020.1

Table 6. Top Employers Posting Pharmacy Aide Occupations in Bay Region and Silicon Valley Sub-Region (June 2019 - May 2020)

Employer	Bay	Employer	Bay	Employer	Silicon Valley
CVS Health	477	Pharmaca Integrative Pharmacy	19	Walgreens Boots Alliance Inc	97
Walgreens Boots Alliance Inc	401	Raley Family Of Fine Stores	17	CVS Health	76
Rite Aid Corporation	176	Postmeds Inc	15	Lucile Packard Childrens Hospital	42
Kaiser Permanente	148	Pharmacy Technician	15	Stanford Health Care	26
Rx Relief	78	Asereth Medical Services	15	Rite Aid Corporation	22
Soliant	60	Cardinal Health, Inc.	14	Kaiser Permanente	16
Walmart / Sam's	59	Northbay Healthcare Group	13	Soliant	13
Sutter Health	55	El Camino Health	13	El Camino Health	13
The Save Mart Companies	47	Albertsons	13	The Save Mart Companies	10
Lucile Packard Childrens Hospital	46	Safeway Incorporated	12	Hospital Corporation of America	10
Sutter Health Sacramento Sierra Region	38	Dignity Health	12	Calaveras Pharmacy	10
Pharmaca	38	UC San Diego	11	Regional Medical Center San Jose	9
Sutter Medical Center	32	Raleys	11	El Camino Hospital	9
UC San Francisco Medical Center	30	Alta Bates Summit	11	Department of Veterans Affairs	8
Stanford Health Care	29	Raley's Supermarkets	10	Walmart / Sam's	7
Department of Veterans Affairs	26	Pharmerica	10	Good Samaritan Hospital	6
University California	22	Hospital Corporation of America	10	Costco	5

Source: Burning Glass

Educational Supply

There are three (3) community colleges in the Bay Region issuing 73 awards on average annually (last 3 years ending 2018-19) on TOP 1221.00-Pharmacy Technology. **There is one college (Foothill College) in the Silicon Valley Sub-Region issuing 33 awards on average annually (last 3 years) on this TOP code.**

There are six (6) Other Educational Institutions in the Bay Region issuing 131 awards on average annually (last 3 years ending 2016-17) on TOP 1221.00-Pharmacy Technology. There is one Other Educational Institution issuing 16 awards on average annually (last 3 years) on this TOP code.

Table 7a. Awards on TOP 1221.00-Pharmacy Technology in Bay Region

College	Sub-Region	Associates	Certificate Low Unit	Total
Foothill	Silicon Valley	15	18	33
San Francisco	Mid-Peninsula		19	19
Santa Rosa	North Bay	6	15	21
Total Bay Region		21	52	73
Total Silicon Valley Sub-Region		15	18	33

Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

Table 7b. Other Educational Institutions Awards on TOP 1221.00-Pharmacy Technology in Bay Region

College	Sub-Region	Award < 1 academic yr	Award 1 < 2 academic yrs	Award 2 < 4 academic yrs	Total
Bay Area Medical Academy	Mid-Peninsula			11	11
Carrington College-Pleasant Hill	East Bay	17	5		22
Carrington College-San Jose	Silicon Valley	11	5		16
Carrington College-San Leandro	East Bay	11	4		15
InterCoast Colleges-Fairfield	North Bay			15	15
Unitek College	East Bay		52		52
Total Bay Region		39	66	26	131
Total Silicon Valley Sub-Region		11	5		16

Source: Data Mart

Note: The annual average for awards is 2014-15 to 2016-17.

Gap Analysis

Based on the data included in this report, **there is a labor market gap in the Bay region with 983 annual openings for the Pharmacy Aide occupational cluster and 205 annual (3-year average) awards for an annual undersupply of 778 students.** In the Silicon Valley Sub-Region, there is **also a gap with 210 annual openings and 49 annual (3-year average) awards for an annual undersupply of 161 students.**

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 1221.00-Pharmacy Technology

2015-16	Bay (All CTE Programs)	Foothill College (All CTE Programs)	State (1221.00)	Bay (1221.00)	Silicon Valley (1221.00)	Foothill College (1221.00)
% Employed Four Quarters After Exit	74%	77%	74%	80%	82%	82%
Median Quarterly Earnings Two Quarters After Exit	\$10,550	\$15,310	\$6,828	\$8,712	\$8,167	\$8,167
Median % Change in Earnings	46%	82%	97%	95%	109%	109%
% of Students Earning a Living Wage	63%	76%	38%	51%	56%	56%

Source: Launchboard Pipeline (version available on 6/12/20)

Skills, Certifications and Education

Table 9. Top Skills for Pharmacy Aide Occupations in Bay Region (June 2019 - May 2020)

Skill	Postings	Skill	Postings	Skill	Postings
Customer Service	1,378	Cash Handling	351	Patient Privacy	148
Retail Industry Knowledge	1,371	Legal Compliance	328	Occupational Health and Safety	146
Pharmacist Assistance	1,033	Data Entry	304	Medical Terminology	141
Prescription Filling	837	Calculation	302	Cleaning	140
Quality Assurance and Control	555	Packaging	267	Medication Distribution	138
Customer Contact	536	Aseptic Technique	212	Order Entry	136
Product Location	514	Health Insurance Portability and Accountability Act (HIPAA)	206	IV Admixture	135
Scheduling	474	Pharmaceutical Services	206	Pharmaceutical Preparation	121
Transcription	442	Patient Contact	182	Prepare Compounds and Reagents	118
Insurance Knowledge	424	Processing Item Returns	180	Hospital Experience	115
Inventory Management	416	Refunds Exchanges and Adjustments	180	Cancer knowledge	113
Inventory Control	404	Prescription Label Creation	177	Medication Inventory	113
Clerical Duties	389	Patient Care	171	Record Keeping	111
Customer Billing	381	Interaction with Patients / Medical Personnel	168	Procurement	110
Staff Management	379	Patient Safety	151	Long-Term Care	109

Source: Burning Glass

Table 10. Certifications for Pharmacy Aide Occupations in Bay Region (June 2019 - May 2020)

Note: 47% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

Certification	Postings	Certification	Postings
Pharmacy Technician Certification Board (PTCB)	1,087	Pharmacy Technology	6
Certified Pharmacy Technician	1,058	Lean Certification	6
Ca License	107	American Heart Association Certification	5
Pharmacy Intern License	71	Environmental Protection Agency Certification	3
Driver's License	52	Advanced Cardiac Life Support (ACLS) Certification	3
American Council of Pharmaceutical Education (ACPE)	40	Certified Teacher	2
First Aid Cpr Aed	34	CDL Class A	2
Security Clearance	29	Automation Certification	2
Basic Life Saving (BLS)	26	Project Management Certification	1
IV (Intravenous) Certification	23	English Certification	1
Basic Cardiac Life Support Certification	13	Certified Veterinary Technician	1
Acquired Immune Deficiency Syndrome (AIDS) Certification	7	Certified Surgical Technologist	1

Source: Burning Glass

Table 11. Education Requirements for Pharmacy Aide Occupations in Bay Region

Note: 56% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	1,538	97%
Associate Degree	55	3%
Bachelor's Degree or Higher	0	0%

Source: Burning Glass

Methodology

Occupations for this report were identified by use of skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

Sources

O*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor's Office MIS system

Contacts

For more information, please contact:

- Doreen O'Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

FOOTHILL COLLEGE
Temporary Program Creation Process
Feedback Form for New Programs

Until the new permanent program creation process has been determined, as part of the temporary program creation process this form shall be used by a department to gather feedback on a new program from key governance committees on campus. A complete program narrative and supporting documentation must be submitted to the groups listed below (simultaneous submission is recommended). Each committee will provide initial feedback via email within two weeks but might also provide additional feedback after their monthly meetings.

After a two-week period, regardless of whether feedback has been received from the three committees, the Division Curriculum Committee may consider the new program for approval. Following Division CC approval, please forward this completed form to the Office of Instruction.

Faculty Author(s): Angela Su
Division: STEM-Biological and Health Sciences

Program Title: Basic Pharmacy Technician
Program Units: 19.5 units

Workforce/CTE Program (Y/N): Yes
Please note that Workforce/CTE status is dependent on the TOP Code assigned to the program.

Type of Award:

- | | |
|--|---|
| <input type="checkbox"/> Non-transcriptable credit certificate | <input type="checkbox"/> AA/AS Degree (local) |
| <input checked="" type="checkbox"/> Certificate of Achievement | <input type="checkbox"/> AA-T/AS-T Degree (ADT) |
| <input type="checkbox"/> Noncredit certificate | |

EQUITY & EDUCATION https://foothill.edu/gov/equity-and-education/
Date of meeting: 10/16/20
Comments: Questions from the E&E committee (<i>response/discussion based on these questions is attached</i>): <ul style="list-style-type: none">• I am a bit confused on the age requirements necessary for the basic PHT program. It says in the document students must be at least 18 years old but we are looking to collaborate with the K-12 schools and have this be part of dual enrollment. How would the program look to ensure the age requirement?• Is the cost of paying the PT faculty coming from CTE/Workforce funds or general funds?• I recognize that this is beyond the control of the department and the faculty, but I am concerned that the hourly wages for the both programs is lower than what many fast food restaurants pay (many start between \$16 - 17/hr). I'm not sure how this is helping to serve the goal of equity and in particular, the document points to serving groups of students who have been disproportionately impacted. Is there some sort of pathway that exists with pharmacy schools?

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

REVENUE & RESOURCES https://foothill.edu/gov/revenue-and-resources/
Date of meeting: 10/9/20
Comments: The Pharm Tech dual enrollment pathways were well thought out and will benefit the students who will not have to pay for course registration fees but the college will collect apportionment from the registered students. In addition additional points using the Governor's new funding formula will be given for the stackable certificates. If possible, find ways to secure grants or matching funds for the supplies and part-time faculty load.

ADVISORY COUNCIL https://foothill.edu/gov/council/
Date of meeting:
Comments: <i>Program was submitted to the Advisory Council on 9/29/20. No response has been received.</i>

Division Curriculum Committee Approval Date: 10/28/2020

Division CC Representative: Lisa Schultheis

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

Responses to Feedback from the E&E committee (thank you to Debbie Lee, Angela Su and Teresa Ong):

Hi Debbie,

Thank you for sharing your concerns. Below are my responses. I'm happy to have a conversation if needed.

- I am a bit confused on the age requirements necessary for the basic PHT program. It says in the document students must be at least 18 years old but we are looking to collaborate with the K-12 schools and have this be part of dual enrollment. How would the program look to ensure the age requirement?
 - Students who are interested in the program would need to be Seniors (12th grade), "rising seniors", or "super seniors" as by the time they graduate high school, they are usually 18 years old or older. It is important to note these that students must first complete the Pharmacy Assistant Certificate (13 units) during their Senior year. When they graduate in early June, (hopefully, they will be 18) and if they desire to take 6 more units to get their Basic Pharmacy Technician Certificate, they can elect to do so.
 - How we ensure the age requirement is through the support of our BGCP College and Career Advisor, Jaime Barajas. By partnering with the BGCP, Jaime connects with every interested high school student's counselor to confirm they will be 18 years old by the time they graduate. He also personally meets with every student. Currently we have 24 students from 4 different High Schools (Menlo-Atherton, Sequoia, EPA, Redwood City) enrolled in this program. It has been Jaime's support that has tremendously helped with onboarding the DE students. He coordinates, communicates (with parents and counselors), completes, and submits all the DE paperwork, and assists with registration while providing ancillary support to ensure eligible students are enrolled in the program.
- Is the cost of paying the PT faculty coming from CTE/Workforce funds or general funds?
 - I believe it is CTE/Workforce Funds. Ram and Teresa would be able to confirm this. I have cc'd them on this email.
- I recognize that this is beyond the control of the department and the faculty, but I am concerned that the hourly wages for the both programs is lower than what many fast food restaurants pay (many start between \$16 - 17/hr). I'm not sure how this is helping to serve the goal of equity and in particular, the document points to serving groups of students who have been disproportionately impacted. Is there some sort of pathway that exists with pharmacy schools?
 - Because there is not a distinct pathway that currently exists with Pharmacy Schools, we created one. This **is** the guided pathway which leads to pharmacy schools. (Hopefully, you able to listen to the Voicethread that highlights the WHY behind the creation of this pathway...it's the second slide on Vy Hoang Tran)
 - The complete "Pharmacy Careers Pathway" as highlighted in my narrative. It explains how this pathway does in fact lead to Pharmacy School. It is because so many of our graduates who complete the Advanced Pharmacy Tech program have continued onto Pharmacy School that we created this complete Pharmacy Careers Pathway beginning in high school (Senior) into adulthood.

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

- **Pharmacy Assistant to Basic Pharmacy Technician to Advanced Pharmacy Technician to Pharmacist.**
- This is the entire "**Pharmacy Careers Pathway**" as highlighted in the narrative document.
- I can understand your concern pertaining to wage. I'd like to highlight the definition of a "job" versus a "career". It is serendipitous that my lesson last week centered around a discussion with my students to differentiate between a job versus a career. I feel this concept important to clarify this as you cite "fast food restaurant" wages when compared to an entry level Pharmacy Assistant/Pharmacy Technician wage. I would say for most individuals, a "fast food restaurant" position would be merely a "job"...not a career. (BTW, all 24 high school students voted that working at a Starbucks or In-N-Out was also, just a "job")
- Here is what I shared with them: Jobs vs careers— What's the difference? Many people use these terms interchangeably, though they have different meanings. A job is something you just do for money...going to work to earn a paycheck....no passion, no goals, no future. The real difference between a job and a career is one's attitude. People who **want a career** are always thinking of their long-term goals and what they can do now to make their goals happen in the future. It might take a few years to earn "bigger pay checks" but **it is about opportunities and pathways to get to your goals**. A career means that each of your jobs, experiences, training programs, is helping you **advance** not only in pay, but in responsibility and position. In the end, your training and education **LEADS YOU SOMEWHERE**.
- I told my students to think of it this way: If life were a video game, a "**job**" would be **just one level**. Having a career means that you are committed to playing the game **to get better over time and advance to higher levels**.
 - This Dual Enrollment PHT **Career** Pathway serves the goal of equity as the emphasis of this guided pathway is to provide disproportionately impacted students with **opportunities** to secure "**skilled health care careers**"...it is not just about a "job".
 - This low barrier pathway program provides the knowledge and competency training to equip underrepresented students with skills to **successfully secure** a "**skilled** entry level" health care position while **ALSO** providing an opportunity for them to advance their education **in ANY allied health "career."**
 - The opportunities are limitless. After students complete this pathway program, they will possess knowledge and transferable skills to begin their journey on a "**career path**". Depending on where they secure their position, **not only do they earn a living wage****, they gain invaluable and applicable experience in an occupation focused on patient care. Simultaneously, they have the flexibility and option to pursue further education later. Providing students with opportunities, knowledge, competency-based training through this "pharmacy careers guided pathway" leads to student success. They become gainfully employed within a health care **career system**.
 - Contrast this to a "**fast food restaurant job**"....granted that this "job" pays \$16 to \$17 and may be a similar wage in some pharmacies. But what **equitable opportunities** are we giving students if you focus **only on wage**? What do students gain working at Starbucks and at an In-N-Out in terms of **health care career opportunities and pathways** to get to their goals. Their training does NOT lead them somewhere. In fact, it sets them back. Will

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

working at a fast-food joint allow them to practice their transferrable skills and knowledge with **patient care**? More importantly, if the students have a passion, an interest, and a vision to secure a **CAREER** within the health care profession, we would be robbing these students of a chance at achieving their personal goals and depriving them of an "**equitable**" opportunity by telling them they can "just get a job at McDonalds". There are a lot of things money can't buy...not even equal wages from a "job".

- This pathway is **not** about a "job". This pathway is about a "career" opportunity for students who have interests and a vision in becoming part of the health care profession but may not have the means or support to get there.
- ****Please look at the slide deck that includes the partnership with VITALS (VA Hospital initiative) where the starting salary for a Pharmacy technician is \$34.00 per hour. Kaiser Pharmacy Clerk/Assistant starting wage is \$23.40 an hour. The average starting salary in the Bay Area is \$21.00. Although Walgreens is lower, their District Manager just informed me that in January, there will be an increase in their wages.**
- Finally, I invite you to please think beyond "wage" from a job as equity. Equity is about serving the disproportionately impacted students by **opening doors** so, they have **more opportunities**...it is about teaching transferrable skills, mentoring, and providing basic needs to students who don't even have the chance at a "health care career" because they lack the resources or support system in place.
- We are a "Community College"...isn't our mission to **serve** the community? The Dual Enrollment Pharmacy Careers Program is equitable as we **directly bring** the opportunities **to** the community. The data indicates many disproportionately impacted students reside in locations within our community where they don't have the transportation or financial means to physically come to Foothill College(Los Altos Hills). By teaching these courses at the Boys and Girls Club in RWC, the students don't travel far, they have all the ancillary support and basic needs met, and most importantly, they get quality education delivered to them. It is also about collaborating with industry partners (BGCP and VITALS) who also share the same vision to accomplish this mission. This is what our program is all about. Isn't this equity?
- I'd like to close by sharing this thought—Equity is about serving, inspiring, and mentoring students of **ALL** walks of life so they know their vision of success for a **career** in health care is not just a dream, but a reality...

Hope this clarifies your concerns.
Angela

Hi everyone,
Thank you for your feedback on this program.
I would like to highlight a few things:

1) Pharm tech has reimagined their pathway into 4 certificates. Instead of offering just the 9 month certificate program, the program has now been redesigned as 2 stackable certificate pathways, with 2 different points of entry and multiple exit points. This is super exciting for us because it means more students may access this program and jump off if

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

they should wish, but still learn skills, earn a certificate and become licensed. This really speaks to the "no wrong door" approach to health careers.

2) Further, the program is one of our low barrier pathways into a skilled career. While many other healthcare pathways require numerous prerequisites, this one does not. A student may study and work in a healthcare setting without needing to take onerous prerequisites. It offers students the work-based learning experiences that so many crave before deciding what career path to embark upon.

3) This program already has 2 employers lined up to hire our students, both of which are willing to support students in their journey in healthcare including paying for their licensing exams, regional living wages, and supporting their employees in continuing their education. The VA for instance has a generous educational stipend for employees through graduate education. No student loans! Wow.

Pharmacy Tech has gone above and beyond most programs to demonstrate viability of these certificates, including finding employers and a dual enrollment partner. We would like to scale this beyond the 24 students each year by providing different entry and exit points for students. Efforts to scale will be funded by Strong Workforce.

I appreciate E&E's feedback and look forward to receiving the go ahead from CCC.

Thank you so much!

Yours sincerely,

Teresa

Foothill College
Credit Program Narrative
Certificate of Achievement in Pharmacy Assistant (Aide/Clerk)

Item 1. Program Goals and Objectives

The Certificate of Achievement in Pharmacy Assistant (Aide/Clerk) is a short-term, entry-level, stackable certificate, which serves as a direct CTE pathway for high school/rising students to pursue careers within the pharmacy profession and various entry-level allied health professions. The academic curriculum, competency-based training, and transferrable skills development will result in skills and credentials necessary to secure living wage skilled positions within the pharmacy profession with the potential for promotion and opportunities for future educational advancement in pharmacy or any health care related career.

This is a low barrier CTE pathway program which empowers students to achieve their goals as members of the health care workforce beginning in high school through adulthood. The “stackable” series of certificates provides equitable educational and career advancement opportunities to ensure all California student populations reach their full potential while earning a living wage which eventually leads to a high wage position.

Students will identify their personal passions, values, personality traits, aptitude and assess the degree of allied health occupational compatibility correlated to them. They will also identify the ideal lifestyle associated with their personal career goals essential for living a balanced and satisfying lifestyle.

Students will acquire, develop, and strengthen essential transferrable skills required for effective collaboration between all health care professionals and for their success in the health care field. This includes communication, teamwork, ethics, professionalism, stress and time management, decision-making, building resilience, identifying learning strategies, demonstrating effective study skills, and goal setting—all essential for productive work habits and attitudes relevant in health care careers.

Students will research and conduct informational interviews to gather current health care career information and develop a career plan for an occupation of choice relevant to health care, listing the appropriate classes, certificates, skills and experience required specific to their personal interest. Careers include, but are not limited to: Pharmacy Technology, EMT, Paramedic/Fire Science, Nursing, Dental Hygiene, Dental Assisting, Respiratory Therapy, Radiologic Technology and Veterinary Technology.

Students will acquire knowledge and demonstrate competency in the following disciplines: basic anatomy and physiology, medical terminology, pharmaceutical abbreviations, pharmaceutical preparations and medication names, pharmacy practice, pharmaceutical compounding, various drug formulations, complementary and alternative medicine, pharmaceutical calculations used in community practice, pharmacy law, pharmacology including diseases and medications used to treat conditions affecting body systems.

Program Learning Outcomes:

- Fundamental Knowledge, Critical Thinking and Student Attitude: Upon completion of the Pharmacy Assistant (Aide/Clerk) course work, students will demonstrate knowledge, skills, and values necessary to practice as a capable and competent Pharmacy Assistant in a community pharmacy setting and/or pursue other entry-level allied health professions.
- Clinical Skills Competency: Upon completion of the Pharmacy Assistant (Aide/Clerk) course work, students will demonstrate competency with entry-level clinical skills required of a Pharmacy Assistant in accordance to California Board of Pharmacy and pharmacy industry standards.

Item 2. Catalog Description

The Certificate of Achievement in Pharmacy Assistant (Aide/Clerk) is the first in a series of stackable pharmacy career certificates. This short-term, entry-level certificate serves as a direct CTE pathway for high school/rising students to pursue careers within the pharmacy profession or pursue other entry-level allied health profession. The academic curriculum, competency-based training, and transferrable skills development will result in skills and credentials necessary to secure living wage skilled positions in the pharmacy profession with the potential for promotion and opportunities for future educational advancement in pharmacy or any health care related career.

Additional details not included as part of the catalog description:

Program Requirements: Any motivated high school student or rising student interested in exploring or entering the pharmacy profession or any health care career.

Prerequisite skills: Satisfactory grades in Algebra 1, High School Biology, and English.

Enrollment Limitations: Based on number of students the off-site dual enrollment facility can accommodate. This is a cohort-based program with the ideal class size minimum of 24 students.

Other information relevant to program goals: Together, in partnership with the Boys and Girls Club of America and the Department of Veteran’s Affairs VITAL Program (VA Initiative in job TraininE Education And Learning), we proactively provide academic, basic needs, financial, technology, and additional learning support services to positively affect student success and retention. The academic curriculum and competency-based training will result in the skills and credentials necessary for the student’s placement into skilled positions within the VA or other Community Pharmacy positions with the potential for promotion and educational subsidies.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (12 units)	PHT 101	Pharmacy Careers A	4	Year 1, Fall
	PHT 102	Pharmacy Careers B	4	Year 1, Winter
	PHT 103	Pharmacy Careers C	4	Year 1, Win/Spr
Restricted Electives (1.5 units)	AHS 51	Health Careers Exploration	1.5	Year 1, Fall

TOTAL UNITS: 13.5 units

Proposed Sequence:

Year 1, Fall = 5.5 units

Year 1, Winter = 4 units

Year 1, Winter/Spring = 4 units (term spanning)

TOTAL UNITS: 13.5

Item 4. Master Planning

The Certificate of Achievement in Pharmacy Assistant (Aide/Clerk) is a dual enrollment program which aligns with Foothill's Mission and Master Planning on multiple levels. This low barrier CTE pathway program empowers students to achieve their goals as members of the health care workforce beginning in high school through adulthood. It is part of a "stackable" series of certificates which provides equitable educational and career advancement opportunities to ensure all California student populations reach their full potential while earning a living wage that leads to a high wage position.

The Pharmacy Technology Department mission is guided by the same tenants as the college: honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. We also foster five core teachings as student progress through the program: respect, unity, ownership, curiosity, and *Ganas*.

This innovative program fits the college's strategy and focus on equity as it promotes direct and ease of access to educational and career exposure opportunities for all students. Together, in partnership with the Boys and Girls Club of America and the Department of Veteran's Affairs VITAL Program (VA In job Training Education And Learning), we proactively provide academic, basic needs, financial, technology, and additional learning support services to positively affect student success and retention.

The academic curriculum and competency-based training will result in the skills and credentials necessary for the student's placement into skilled positions within the VA or other Community Pharmacy positions with the potential for promotion and educational subsidies. It also addresses the paucity of options for underserved, low income students by preparing them to work and advance professionally within the industry and/or pursue college at a later time. The collaboration of BGCP, VITALS, and the Foothill College Pharmacy Technology Program is a model of education and training for the next generation of health care workforce and leadership.

Listed below are the specific *Educational Master Plan Goals* this program addresses. It truly exemplifies Foothill College's culture of innovation and problem solving, with the emphasis on eliminating disproportionate impact among student groups as it meets all but one goal:

Create a culture of equity that promotes student success, particularly for underserved students.

- Implement activities to improve achievement of student outcomes among those population groups experiencing disproportionate impact.

- Reduce barriers and facilitate students' ease of access across the District and region.
- Enhance support for online quality and growth for instruction and student services.
- Collaborate with K-12, adult education and four-year institutions in ways that serve students and society.
- Partner with business and industry to prepare students for the workforce.

Strengthen a sense of community and commitment to the College's mission; expand participation from all constituencies in shared governance.

- Encourage student participation in leadership and activities outside the classroom (including service/work-based learning) that engages students with the College and the community.
- Provide effective onboarding, support and professional development for all college employees.
- Encourage employee participation in leadership and activities that engages them with the College and the community.
- Promote consistent and clear communication in order to create a more informed, cohesive and engaged community.
- Increase lifelong learning opportunities for our community.
- Promote decision-making that respects the diverse needs of the entire college community.

Recognize and support a campus culture that values ongoing improvement and stewardship of resources.

- Increase advocacy at the state level, increase grants and private donations to secure stable and sustainable funding, and manage college resources strategically.
- Employ data-driven decision-making.

Higher Education in California—Vision for Success

SB 1070 and AB 288 emphasizes the development and strengthening of CTE pathways between high schools and community colleges to accomplish statewide objectives to meet under-served students in California. The Certificate of Achievement in Pharmacy Assistant (Aide/Clerk) meets several California's Higher Education Vision for Success goals:

1. This pathway program meets future workforce demand in California, as analyzed by the Centers of Excellence for Labor Market Research. It increases the number of students annually who will acquire specific skill sets, certificates, associate degrees, and credentials that prepare them for an in-demand job. This goal is consistent with the recommendations of the California Strategic Workforce Development Plan. The scope of education the students receives prepares them not only for careers in pharmacy, but serves as a foundation of knowledge applicable in all allied health professions.
2. This program increases the percent of exiting CTE students who report being employed in their field of study, Pharmacy Careers. This dual enrollment program ensures high school students receive the training and education needed to be successful in the field of pharmacy. Upon program completion, they can directly work as a Pharmacy Assistant (Aide/Clerk), or elect to obtain a Basic/Entry Level Pharmacy Technician certificate. This CTE pathway program prepares students for available jobs and supports students to find jobs in the pharmacy industry sector.

3. This program reduces equity gaps across all of the above measures through faster improvements among traditionally underrepresented student groups. Through the partnership of the Boys and Girls Club of America and the Department of Veterans Affairs VITAL Program, students will have extra resources and support to help them succeed both in and outside of the classroom. This collaboration is the first in the nation and we believe is the model that will truly serve underrepresented student groups.
4. This program decreases the average number of units accumulated by students earning an associate degree in Pharmacy Technology. The revised ASHP/ACPE Accredited Advanced Pharmacy Technician Training Program is 40 units instead of 52 units. Students who elect to obtain an AS degree in Pharmacy Technology will only need to take their remaining GE requirements. This reduction of units-to-degree will help more students reach their educational goals sooner and at a lower cost.

Item 5. Enrollment and Completer Projections

24 students are enrolled in first cohort and we anticipate 24 to successfully complete the program. The realistic projected program completion goal is 80% (19 students). Since this is a cohort-based program, enrollment will be strictly dependent on regional high school districts offering this program to their students. The goal is to expand this program to surrounding high school regions; for example, San Jose, East Bay, etc. Completion figures will also be dependent on regional Boys and Girls Club and VA support.

After 5 years, an increase in the number of regions that offer this cohort program will increase the number of total enrolled students by a factor of 24. For example, if there are two cohorts per year (Redwood City and San Jose school districts), we will have 48 enrolled students.

		Year 1		Year 2	
Course #	Course Title	Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
AHS 51	Health Careers Exploration	1	29	1	34
PHT 101	Pharmacy Careers A	N/A	N/A	N/A	N/A
PHT 102	Pharmacy Careers B	N/A	N/A	N/A	N/A
PHT 103	Pharmacy Careers C	N/A	N/A	N/A	N/A

Item 6. Place of Program in Curriculum/Similar Programs

Foothill College does not currently have a CTE stackable Pharmacy pathway program with training beginning from high school. This new program allows high school students to simultaneously obtain high school elective units and a certificate. Upon completion, they can choose to either directly enter the pharmacy workforce as a Pharmacy Assistant (Aide/Clerk) or continue their education with 6 additional units of course work (including 130 hours of externship) to obtain the Certificate of Achievement in Basic Pharmacy Technician* (stackable certificate). Students are eligible to register with the California Board of Pharmacy for a license to practice as a Pharmacy Technician. After working for an additional 370 hours as a Pharmacy Technician, they qualify to take the National Pharmacy Technician Certification Exam (PTCE) and become a Certified Pharmacy Technician.

**students must be 18 years old to complete externship and California Board of Pharmacy licensing requirements.*

Students can continue on the pathway to complete Foothill College's Advanced Pharmacy Technician training program and take additional GE courses to obtain an Associate in Science Degree in Pharmacy Technology. Finally, if students wish to become a Pharmacist, they can take all required pharmacy school prerequisites offered at Foothill College without having to attend a 4-year college/university. There are no other programs at Foothill College with a pathway beginning in high school that provide students numerous career and education opportunities within the pharmacy/health care profession.

The Complete Pharmacy Careers CTE Pathway:

Pharmacy Assistant (Aide/Clerk) ⇒ Basic or Entry Level Pharmacy Technician ⇒ Certified Pharmacy Technician ⇒ Advanced Level Pharmacy Technician ⇒ AS Degree in Pharmacy Technology ⇒ PharmD (Doctor of Pharmacy)

Item 7. Similar Programs at Other Colleges in Service Area

To our knowledge, there are no similar programs already being offered in Foothill's service area. There are currently no dual enrollment Pharmacy Assistant (Aide/Clerk) programs with stackable certificates in Foothill's service area.

Additional Information Required for State Submission:

TOP Code: 1221.00 - Pharmacy Technology

Annual Completers: Anticipate 24 students the first year, with the goal to increase the number of cohorts offered at various high school regions. An increase in the number of regions that offer this cohort program will increase the number of enrolled students by a factor of 24. For example, if there are 2 cohorts per year (Redwood City and San Jose), we will have 48 enrolled students, etc.

Net Annual Labor Demand: 939

Faculty Workload: PT course load is 0.305

New Faculty Positions: 1 part-time instructor

New Equipment: Textbooks (one-time expense as textbooks are loaned), materials, supplies, consumable workbooks for 24 students = \$5000

New/Remodeled Facilities: \$0.00 (dual enrollment off-site at Boys & Girls Club of the Peninsula)

Library Acquisitions: \$0.00

Gainful Employment: Yes

Program Review Date: Pharmacy Technology Comprehensive Program Review in Academic Year 2019-2020 (submitted December 2019; because of COVID-19 Shelter in Place, the college will finalize CPR results and findings in Fall 2020)

Distance Education: 0%

Pharmacy Aide Occupations Labor Market Information Report Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
June 2020

Recommendation

Based on all available data, there appears to be an **undersupply** of Pharmacy Aide workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 778 students in the Bay region and 161 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 1221.00-Pharmacy Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

Introduction

This report profiles Pharmacy Aide Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Foothill College.

- Pharmacy Aides (SOC 31-9095):** Record drugs delivered to the pharmacy, store incoming merchandise, and inform the supervisor of stock needs. May operate cash register and accept prescriptions for filling.
 Entry-Level Educational Requirement: High school *diploma or equivalent*
 Training Requirement: Short-term *on-the-job training*
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 45%
- Pharmacy Technicians (SOC 29-2052):** Prepare medications under the direction of a pharmacist. May measure, mix, count out, label, and record amounts and dosages of medications according to prescription orders.
 Entry-Level Educational Requirement: High school *diploma or equivalent*
 Training Requirement: Moderate-term *on-the-job training*
 Percentage of Community College Award Holders or Some Postsecondary Coursework: 56%

Occupational Demand

Table 1. Employment Outlook for Pharmacy Aide Occupations in Bay Region

Occupation	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Pharmacy Aides	1,945	1,820	-125	-6%	1,201	240	\$13.39	\$17.20
Pharmacy Technicians	8,026	8,409	383	5%	3,714	743	\$17.43	\$21.81
TOTAL	9,971	10,229	259	3%	4,915	983	\$16.64	\$20.91

Source: EMSI 2020.1

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Pharmacy Aide Occupations in Silicon Valley Sub-Region

Occupation	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Pharmacy Aides	354	316	-37	-11%	214	43	\$12.40	\$14.13
Pharmacy Technicians	1,931	1,977	46	2%	836	167	\$15.03	\$18.76
TOTAL	2,285	2,294	9	0%	1,049	210	\$14.63	\$18.04

Source: EMSI 2020.1

Silicon Valley Sub-Region includes Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region**Table 3. Number of Job Postings by Occupation for latest 12 months (June 2019 - May 2020)**

Occupation	Bay Region	Silicon Valley
Pharmacy Technicians	3,256	565
Pharmacy Aides	348	72
TOTAL	3,604	637

Source: Burning Glass

Table 4a. Top Job Titles for Pharmacy Aide Occupations for latest 12 months (June 2019 - May 2020) Bay Region

Common Title	Bay	Common Title	Bay
Pharmacy Technician	2,919	Technician	3
Certified Pharmacy Technician	261	Pharmacy Support Clerk	3
Pharmacy Cashier	163	Pharmacy Clerk, Delivery	3
Pharmacy Clerk	85	Pharmacy Clerk, Bilingual, Cantonese	3
Pharmacist	39	Pet Technician, Accommodation/Hotels Industry	3
Pharmacy Assistant	31	Coordinator, Order Entry	3
Data Entry Technician	19	Pt Pharmacy Technology Instructor	2
Prototyper IV	5	Production Technician	2
Project Technical Lead, Pharmacy	5	Pharmacy Technology Instructor	2
Entry Pharmacy Clerk	5	Pharmacy Clerk, Spanish, Public Speaking	2
Retail Clerk	4	Pharmacy Clerk, Mill	2
Pharmacy Coordinator	4	Medication Coordinator	2
Glassware Technician	4	Laboratory Glassware	2
Veterinary Technician	3	Food Pharmacy Coordinator	2

Table 4b. Top Job Titles for Pharmacy Aide Occupations for latest 12 months (June 2019 - May 2020) Silicon Valley Sub-Region

Common Title	Silicon Valley	Common Title	Silicon Valley
Pharmacy Technician	498	Pt Pharmacy Technology Instructor	2
Certified Pharmacy Technician	56	Pharmacy Clerk, Spanish, Public Speaking	2
Pharmacy Cashier	42	Laboratory Glassware	2
Pharmacist	11	Order Entry Coordinator, Entry	1
Pharmacy Clerk	9	Order Entry Coordinator	1
Pharmacy Assistant	7	Department Pharmacy Clerk, Veterinary, Outpatient, Healthcare Industry	1
Pharmacy Coordinator	4	Customer Service Technician	1

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Pharmacy Aide Workers in Bay Region

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2019)	Jobs in Industry (2022)	% Change (2019-24)	% Occupation Group in Industry (2019)
Pharmacies and Drug Stores (446110)	4,602	4,850	5%	49%
General Medical and Surgical Hospitals (622110)	859	969	13%	10%
Supermarkets and Other Grocery (except Convenience) Stores (445110)	867	879	1%	9%
HMO Medical Centers (621491)	245	443	81%	4%
Electronic Shopping and Mail-Order Houses (454110)	239	430	80%	4%
Hospitals (Local Government) (903622)	297	361	22%	4%
Warehouse Clubs and Supercenters (452311)	340	267	-21%	3%
Department Stores (452210)	388	223	-43%	2%
Drugs and Druggists' Sundries Merchant Wholesalers (424210)	58	127	119%	1%
Hospitals (State Government) (902622)	33	109	230%	1%
Offices of Physicians (except Mental Health Specialists) (621111)	152	107	-30%	1%

Source: EMSI 2020.1

Table 6. Top Employers Posting Pharmacy Aide Occupations in Bay Region and Silicon Valley Sub-Region (June 2019 - May 2020)

Employer	Bay	Employer	Bay	Employer	Silicon Valley
CVS Health	477	Pharmaca Integrative Pharmacy	19	Walgreens Boots Alliance Inc	97
Walgreens Boots Alliance Inc	401	Raley Family Of Fine Stores	17	CVS Health	76
Rite Aid Corporation	176	Postmeds Inc	15	Lucile Packard Childrens Hospital	42
Kaiser Permanente	148	Pharmacy Technician	15	Stanford Health Care	26
Rx Relief	78	Asereth Medical Services	15	Rite Aid Corporation	22
Soliant	60	Cardinal Health, Inc.	14	Kaiser Permanente	16
Walmart / Sam's	59	Northbay Healthcare Group	13	Soliant	13
Sutter Health	55	El Camino Health	13	El Camino Health	13
The Save Mart Companies	47	Albertsons	13	The Save Mart Companies	10
Lucile Packard Childrens Hospital	46	Safeway Incorporated	12	Hospital Corporation of America	10
Sutter Health Sacramento Sierra Region	38	Dignity Health	12	Calaveras Pharmacy	10
Pharmaca	38	UC San Diego	11	Regional Medical Center San Jose	9
Sutter Medical Center	32	Raleys	11	El Camino Hospital	9
UC San Francisco Medical Center	30	Alta Bates Summit	11	Department of Veterans Affairs	8
Stanford Health Care	29	Raley's Supermarkets	10	Walmart / Sam's	7
Department of Veterans Affairs	26	Pharmerica	10	Good Samaritan Hospital	6
University California	22	Hospital Corporation of America	10	Costco	5

Source: Burning Glass

Educational Supply

There are three (3) community colleges in the Bay Region issuing 73 awards on average annually (last 3 years ending 2018-19) on TOP 1221.00-Pharmacy Technology. **There is one college (Foothill College) in the Silicon Valley Sub-Region issuing 33 awards on average annually (last 3 years) on this TOP code.**

There are six (6) Other Educational Institutions in the Bay Region issuing 131 awards on average annually (last 3 years ending 2016-17) on TOP 1221.00-Pharmacy Technology. There is one Other Educational Institution issuing 16 awards on average annually (last 3 years) on this TOP code.

Table 7a. Awards on TOP 1221.00-Pharmacy Technology in Bay Region

College	Sub-Region	Associates	Certificate Low Unit	Total
Foothill	Silicon Valley	15	18	33
San Francisco	Mid-Peninsula		19	19
Santa Rosa	North Bay	6	15	21
Total Bay Region		21	52	73
Total Silicon Valley Sub-Region		15	18	33

Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

Table 7b. Other Educational Institutions Awards on TOP 1221.00-Pharmacy Technology in Bay Region

College	Sub-Region	Award < 1 academic yr	Award 1 < 2 academic yrs	Award 2 < 4 academic yrs	Total
Bay Area Medical Academy	Mid-Peninsula			11	11
Carrington College-Pleasant Hill	East Bay	17	5		22
Carrington College-San Jose	Silicon Valley	11	5		16
Carrington College-San Leandro	East Bay	11	4		15
InterCoast Colleges-Fairfield	North Bay			15	15
Unitek College	East Bay		52		52
Total Bay Region		39	66	26	131
Total Silicon Valley Sub-Region		11	5		16

Source: Data Mart

Note: The annual average for awards is 2014-15 to 2016-17.

Gap Analysis

Based on the data included in this report, **there is a labor market gap in the Bay region with 983 annual openings for the Pharmacy Aide occupational cluster and 205 annual (3-year average) awards for an annual undersupply of 778 students.** In the Silicon Valley Sub-Region, there is **also a gap with 210 annual openings and 49 annual (3-year average) awards for an annual undersupply of 161 students.**

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 1221.00-Pharmacy Technology

2015-16	Bay (All CTE Programs)	Foothill College (All CTE Programs)	State (1221.00)	Bay (1221.00)	Silicon Valley (1221.00)	Foothill College (1221.00)
% Employed Four Quarters After Exit	74%	77%	74%	80%	82%	82%
Median Quarterly Earnings Two Quarters After Exit	\$10,550	\$15,310	\$6,828	\$8,712	\$8,167	\$8,167
Median % Change in Earnings	46%	82%	97%	95%	109%	109%
% of Students Earning a Living Wage	63%	76%	38%	51%	56%	56%

Source: Launchboard Pipeline (version available on 6/12/20)

Skills, Certifications and Education

Table 9. Top Skills for Pharmacy Aide Occupations in Bay Region (June 2019 - May 2020)

Skill	Postings	Skill	Postings	Skill	Postings
Customer Service	1,378	Cash Handling	351	Patient Privacy	148
Retail Industry Knowledge	1,371	Legal Compliance	328	Occupational Health and Safety	146
Pharmacist Assistance	1,033	Data Entry	304	Medical Terminology	141
Prescription Filling	837	Calculation	302	Cleaning	140
Quality Assurance and Control	555	Packaging	267	Medication Distribution	138
Customer Contact	536	Aseptic Technique	212	Order Entry	136
Product Location	514	Health Insurance Portability and Accountability Act (HIPAA)	206	IV Admixture	135
Scheduling	474	Pharmaceutical Services	206	Pharmaceutical Preparation	121
Transcription	442	Patient Contact	182	Prepare Compounds and Reagents	118
Insurance Knowledge	424	Processing Item Returns	180	Hospital Experience	115
Inventory Management	416	Refunds Exchanges and Adjustments	180	Cancer knowledge	113
Inventory Control	404	Prescription Label Creation	177	Medication Inventory	113
Clerical Duties	389	Patient Care	171	Record Keeping	111
Customer Billing	381	Interaction with Patients / Medical Personnel	168	Procurement	110
Staff Management	379	Patient Safety	151	Long-Term Care	109

Source: Burning Glass

Table 10. Certifications for Pharmacy Aide Occupations in Bay Region (June 2019 - May 2020)

Note: 47% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

Certification	Postings	Certification	Postings
Pharmacy Technician Certification Board (PTCB)	1,087	Pharmacy Technology	6
Certified Pharmacy Technician	1,058	Lean Certification	6
Ca License	107	American Heart Association Certification	5
Pharmacy Intern License	71	Environmental Protection Agency Certification	3
Driver's License	52	Advanced Cardiac Life Support (ACLS) Certification	3
American Council of Pharmaceutical Education (ACPE)	40	Certified Teacher	2
First Aid Cpr Aed	34	CDL Class A	2
Security Clearance	29	Automation Certification	2
Basic Life Saving (BLS)	26	Project Management Certification	1
IV (Intravenous) Certification	23	English Certification	1
Basic Cardiac Life Support Certification	13	Certified Veterinary Technician	1
Acquired Immune Deficiency Syndrome (AIDS) Certification	7	Certified Surgical Technologist	1

Source: Burning Glass

Table 11. Education Requirements for Pharmacy Aide Occupations in Bay Region

Note: 56% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	1,538	97%
Associate Degree	55	3%
Bachelor's Degree or Higher	0	0%

Source: Burning Glass

Methodology

Occupations for this report were identified by use of skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

Sources

O*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor's Office MIS system

Contacts

For more information, please contact:

- Doreen O'Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

FOOTHILL COLLEGE
Temporary Program Creation Process
Feedback Form for New Programs

Until the new permanent program creation process has been determined, as part of the temporary program creation process this form shall be used by a department to gather feedback on a new program from key governance committees on campus. A complete program narrative and supporting documentation must be submitted to the groups listed below (simultaneous submission is recommended). Each committee will provide initial feedback via email within two weeks but might also provide additional feedback after their monthly meetings.

After a two-week period, regardless of whether feedback has been received from the three committees, the Division Curriculum Committee may consider the new program for approval. Following Division CC approval, please forward this completed form to the Office of Instruction.

Faculty Author(s): Angela Su
Division: STEM-Biological and Health Sciences

Program Title: Pharmacy Assistant (Aide/Clerk)
Program Units: 13.5 units

Workforce/CTE Program (Y/N): Yes
Please note that Workforce/CTE status is dependent on the TOP Code assigned to the program.

Type of Award:

- | | |
|--|---|
| <input type="checkbox"/> Non-transcriptable credit certificate | <input type="checkbox"/> AA/AS Degree (local) |
| <input checked="" type="checkbox"/> Certificate of Achievement | <input type="checkbox"/> AA-T/AS-T Degree (ADT) |
| <input type="checkbox"/> Noncredit certificate | |

EQUITY & EDUCATION https://foothill.edu/gov/equity-and-education/
Date of meeting: 10/16/20
Comments: <i>Questions from the E&E committee related to both this certificate and the Basic Pharmacy Technician certificate stimulated helpful conversation. The questions and responses are included on the Feedback Form for the Certificate of Achievement in Basic Pharmacy Technician.</i>

REVENUE & RESOURCES https://foothill.edu/gov/revenue-and-resources/
Date of meeting: 10/9/20
Comments: The Pharm Tech dual enrollment pathways were well thought out and will benefit the students who will not have to pay for course registration fees but the college will collect apportionment from the registered students. In addition additional points using the Governor's new funding formula will be given for the stackable certificates. If possible, find ways to secure grants or matching funds for the supplies and part-time faculty load.

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

ADVISORY COUNCIL https://foothill.edu/gov/council/
Date of meeting:
Comments: <i>Program was submitted to the Advisory Council on 9/29/20. No response has been received.</i>

Division Curriculum Committee Approval Date: 10/28/2020

Division CC Representative: Lisa Schultheis

Foothill College
Credit Program Narrative
Certificate of Achievement in Air Conditioning Mechanic

Item 1. Program Goals and Objectives

The Air Conditioning Mechanic program is offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund. The program goals and objectives are to provide students on-the-job training and in-class instruction in the service sector of the sheet metal and heating, ventilating and air conditioning (HVAC) industry. The students will learn how to perform scheduled maintenance, troubleshoot and repair the HVAC systems used in commercial buildings.

Program Learning Outcomes:

- Students will be able to achieve EPA 608 and OSHA 30 Certifications.
- Students will be able to understand the different types, properties, and application of refrigerants.
- Students will be able to demonstrate the ability to measure, cut, bend, and make various types of tubing and piping connections.
- Students will be able to demonstrate the safe use of soldering and brazing equipment.
- Students will be able to explain functions of special components: filter driers, sight glass, suction line accumulator, liquid line receiver, hot gas bypass, ambient controls.
- Students will be able to explain the application and operational sequence of electric and gas heating.
- Students will be able to understand the different types of heat sources for hydronic heating (water, steam, geothermal/waste heat, solar).
- Students will be able to perform start-up, diagnosis, repair, and maintenance of cooling towers and pumps.
- Students will be able to demonstrate an understanding of green construction and energy conservation as it applies to the HVAC industry in California.
- Students will be able to explain the LEED rating system, and how it involves HVAC maintenance over the life of the building.

Item 2. Catalog Description

The Air Conditioning Mechanic program is offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund. This 5-year apprenticeship program provides students with in-class instruction and paid on-the-job training with a sheet metal contractor, in the service sector of the sheet metal and heating, ventilating and air conditioning (HVAC) industry. The students will perform scheduled maintenance and troubleshoot system problems while dealing directly with a variety of customers. The students utilize understanding of refrigerant, electronic and pneumatic controls, filtration and duct systems to maintain safe and efficient system performance. Mechanics use test equipment to verify conditions, research manufacturer's data, and then adjust, repair and replace components as needed. Sheet Metal Air Conditioning Service Mechanics work on residential, light commercial and more often, complex commercial systems. Upgrade training is common in this occupation as more advanced and "greener" equipment is produced.

Per California Code of Regulations, this program is limited to students admitted to the Sheet Metal Local 104 & Bay Area Industry Training Fund's Air Conditioning Mechanic Program.

Upon completion of the program, students will be eligible to receive a Certificate of Achievement in Air Conditioning Mechanic from Foothill College and an Apprenticeship Completion Certificate from the California Division of Apprenticeship Standards (DAS). The graduates will be employable as HVAC Service Technician/Mechanic; HVAC Service Manager; HVAC Contractor; NATE Certified Air Conditioning Mechanic; Test, Adjust & Balancing Technician; Building Inspector; foreman; estimator/detailer; contractor; instructor; project manager and other related occupations.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (69 units)	APSM 122	SMQ-22 Codes & Standards	3	Year 4, Spring
	APSM 151A	Service Introduction & Safety	2.5	Year 1, Fall
	APSM 151B	Essential HVAC Service Skills	2.5	Year 1, Winter
	APSM 151C	Heat, Matter & Energy in HVAC Systems	2.5	Year 1, Fall
	APSM 152A	Piping, Refrigerant Evacuation & Recovery	1.5	Year 1, Spring
	APSM 152B	Charging Refrigerant Systems	2	Year 2, Winter
	APSM 152C	Introduction to Electricity	2.5	Year 1, Spring
	APSM 153B	Electric Motors & Motor Controls in HVAC Systems	2.5	Year 2, Fall
	APSM 154A	Refrigeration in Air Conditioning	2	Year 2, Winter
	APSM 154B	Gas & Electric Heating	2	Year 2, Spring
	APSM 154C	Hydronic Heating	2	Year 2, Spring
	APSM 155A	Sheet Metal Fabrication	1.5	Year 2, Fall
	APSM 156A	Heat Pump Efficient Operation & Service	2.5	Year 3, Fall
	APSM 156B	Cooling Towers, Pumps & Piping	2.5	Year 3, Winter
	APSM 156C	Chilled Water HVAC Systems & Components	2.5	Year 3, Winter
	APSM 157A	Plans & Specifications for the Service Technician	2.5	Year 3, Fall
	APSM 157B	HVAC Energy Codes & Standards	2.5	Year 4, Winter
	APSM 158A	Introduction to Direct Digital HVAC Controls	2	Year 5, Fall
	APSM 158C	Inverter, VRF & Heat Recovery Technology	2.5	Year 3, Spring
	APSM 159B	Airflow & Psychrometrics for TAB	2.5	Year 1, Winter
APSM 172B	Proportional Balancing	2	Year 3, Spring	
APSM 173B	Temperature Measurements, Duct Systems & Basic Controls	2.5	Year 4, Fall	

	APSM 173C	HVAC Fans, Fan Laws & V-Belt Drives	2.5	Year 4, Fall
	APSM 174A	Hydronic Systems, Pumps & Hydronic Balancing	2.5	Year 4, Winter
	ASPM 175B	DDC Controls & Programs	2	Year 5, Fall
	APSM 177A	Title 24 Mechanical Acceptance Testing	2.5	Year 4, Spring
	APSM 177B	Advanced DDC Controls/ Commissioning of HVAC Systems	2	Year 5, Winter
	APSM 177C	Energy Auditing	2.5	Year 5, Spring
	APSM 178A	Indoor Air Quality	2	Year 5, Spring
	APSM 178C	Foreman Training/Project Management for HVAC	2.5	Year 5, Winter

TOTAL UNITS: 69 units

Proposed Sequence:

Year 1, Fall = 5	Year 2, Fall = 4
Year 1, Winter = 5	Year 2, Winter = 4
Year 1, Spring = 4	Year 2, Spring = 4
Year 3, Fall = 5	Year 4, Fall = 5
Year 3, Winter = 5	Year 4, Winter = 5
Year 3, Spring = 4.5	Year 4, Spring = 5.5
Year 5, Fall = 4	
Year 5, Winter = 4.5	
Year 5, Spring = 4.5	

TOTAL UNITS: 69 units

Item 4. Master Planning

The Certificate of Achievement in Air Conditioning Mechanic aligns with the Foothill College Mission statement well. As part of a state registered apprenticeship program, it provides high level technical training to diverse students with different socio-economic backgrounds. It serves the students who live in the Santa Clara, Alameda, Contra Costa, SF, San Mateo, Monterey, and San Benito counties, and it provides on-the-job training with local employers. The program provides students with livable wages and health benefits for them and their families in the most prosperous state.

Item 5. Enrollment and Completer Projections

Currently, there are 110 students enrolled in the Air Conditioning Mechanic program. The retention rate for this program is between 90 to 95 percent because it also offers employment opportunities. We project to have 12 students graduating in 2020-21 and approximately 60-70 students will graduate by 2025-2026.

Course #	Title	Year 1 (FY 2018-19)		Year 2 (FY 2019-20)	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APSM 122	SMQ-22 Codes & Standards	9	116	6	68
APSM 151A	Service Introduction & Safety	4	25	3	15
APSM 151B	Essential HVAC Service Skills	3	8	1	5
APSM 151C	Heat, Matter & Energy in HVAC Systems	5	25	3	22
APSM 152A	Piping, Refrigerant Evacuation & Recovery	4	20	4	21
APSM 152B	Charging Refrigerant Systems	0	0	0	0
APSM 152C	Introduction to Electricity	0	0	7	43
APSM 153B	Electric Motors & Motor Controls in HVAC Systems	1	15	5	26
APSM 154A	Refrigeration in Air Conditioning	3	15	5	26
APSM 154B	Gas & Electric Heating	4	20	3	15
APSM 154C	Hydronic Heating	0	0	4	19
APSM 155A	Sheet Metal Fabrication	0	0	7	41
APSM 156A	Heat Pump Efficient Operation & Service	2	6	3	15
APSM 156B	Cooling Towers, Pumps & Piping	1	5	4	16
APSM 156C	Chilled Water HVAC Systems & Components	3	8	4	26
APSM 157A	Plans & Specifications for the Service Technician	3	17	4	20
APSM 157B	HVAC Energy Codes & Standards	1	10	2	19
APSM 158A	Introduction to Direct Digital HVAC Controls	0	0	0	0
APSM 158C	Inverter, VRF & Heat Recovery Technology	3	8	1	5
APSM 159B	Airflow & Psychrometrics For TAB	0	0	2	13
APSM 172B	Proportional Balancing	6	68	2	21
APSM 173B	Temperature Measurements, Duct Systems & Basic Controls	0	0	1	13
APSM 173C	HVAC Fans, Fan Laws & V-Belt Drives	0	0	2	22

APSM 174A	Hydronic Systems, Pumps & Hydronic Balancing	1	5	1	13
ASPM 175B	DDC Controls & Programs	1	10	2	15
APSM 177A	Title 24 Mechanical Acceptance Testing	11	125	13	171
APSM 177B	Advanced DDC Controls/ Commissioning of HVAC Systems	1	6	3	28
APSM 177C	Energy Auditing	1	6	1	6
APSM 178A	Indoor Air Quality	1	6	2	13
APSM 178C	Foreman Training/Project Management for HVAC	1	6	1	6

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Air Conditioning Mechanic is an addition to our existing CTE programs and registered apprenticeship programs.

While the Certificate of Achievement in Air Conditioning Mechanic is similar to the existing Air Conditioning and Refrigeration Technology program at Foothill, it differentiates itself in the need to train Sheet Metal workers as Air Conditioning Mechanics and by including Testing and Balancing of HVAC equipment as part of the curriculum. Industry needs require both trades to be trained independently of each other.

Item 7. Similar Programs at Other Colleges in Service Area

There are no other programs similar to this one in Foothill's service area and out of the service area because our program is a state registered apprenticeship program.

Additional Information Required for State Submission:

TOP Code: 0946.00 - Environmental Control Technology (HVAC)

Annual Completers: 12-17

Net Annual Labor Demand: 908

Faculty Workload: 2 full-time and 10 part-time

New Faculty Positions: 0

New Equipment: 0

New/Remodeled Facilities: 0

Library Acquisitions: 0

Gainful Employment: Yes

Program Review Date: December 2023

Distance Education: 0%

Air Conditioning Mechanic Occupations Labor Market Information Report Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
March 2020

Recommendation

Based on all available data, there appears to be an undersupply of Air Conditioning Mechanic workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 908 students in the Bay region and 249 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 09460.00 - Environmental Control Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

Introduction

This report profiles Air Conditioning Mechanic Occupations in the 12 county Bay region and in the Silicon Valley sub-region for Foothill College.

- **Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC 49-9021):** Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: Long-term *on-the-job training*

Percentage of Community College Award Holders or Some Postsecondary Coursework: 42%

Occupational Demand

Table 1. Employment Outlook for Air Conditioning Mechanic Occupations in Bay Region

Occupation	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	8,012	9,046	1,034	13%	5,192	1,038	\$20.36	\$27.98

Source: EMSI 2019.4

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Air Conditioning Mechanic Occupations in Silicon Valley Sub-Region

Occupation	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,321	2,697	376	16%	1,597	319	\$19.37	\$30.10

Source: EMSI 2019.4

Silicon Valley Sub-Region includes Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region

Table 3. Number of Job Postings by Occupation for latest 12 months (March 2019 - February 2020)

Occupation	Bay Region	Silicon Valley
Heating and Air Conditioning Mechanics and Installers	2,164	705
Refrigeration Mechanics and Installers	209	40
TOTAL	2,373	745

Source: Burning Glass

Table 4a. Top Job Titles for Air Conditioning Mechanic Occupations for latest 12 months (March 2019 - February 2020) Bay Region

Common Title	Bay	Common Title	Bay
Service Technician	381	Journeyman	19
HVAC Technician	263	HVAC Foreman	14
HVAC Installer	222	Lead Installer	13
HVAC Service Technician	205	Entry Level HVAC	13
Refrigeration Technician	149	HVAC Foreman, Commercial	12
HVAC Journeyman	127	Residential Installer	11
Mechanic	85	Dispatcher	11
Technician	65	HVACR Technician	10
Estimator	65	HVAC Commercial Foreman	10
Appliance Repair Technician	54	Senior Technician, General	9
Installer	39	Operations Technician	9
HVAC Mechanic	38	Lead Technician	8
HVAC Project Manager	34	Field Controls Integration Technician	8
Maintenance Technician	23	Equipment Mechanic	8

Table 4b. Top Job Titles for Air Conditioning Mechanic Occupations for latest 12 months (March 2019 - February 2020) Silicon Valley Sub-Region

Common Title	Silicon Valley	Common Title	Silicon Valley
Service Technician	146	Residential Installer	5
HVAC Technician	106	Project Estimator	5
HVAC Service Technician	73	Journeyman	5
HVAC Installer	55	Entry Level HVAC	5
HVAC Journeyman	39	Sign - On	4
Technician	33	Maintenance Technician	4
Mechanic	33	Installer	4
Refrigeration Technician	28	HVAC Technical Support	4
Estimator	24	Utility Technician	3
HVAC Mechanic	16	Technician Supervisor	3
Appliance Repair Technician	11	Plumbing HVAC Project Manager	3
HVAC Project Manager	9	Lead Technician	3
Dispatcher	8	Lead Installer	3
Operations Technician	6	HVACR Technician	3

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Air Conditioning Mechanic Workers in Bay Region

Industry – 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2018)	Jobs in Industry (2022)	% Change (2018-22)	% in Industry (2018)
Plumbing, Heating, and Air-Conditioning Contractors (238220)	5,562	6,451	16%	69%
Residential Remodelers (236118)	221	252	14%	3%
Electrical Contractors and Other Wiring Installation Contractors (238210)	162	180	11%	2%
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance (811310)	100	108	8%	1%
All Other Specialty Trade Contractors (238990)	101	108	7%	1%
New Single-Family Housing Construction (except For-Sale Builders) (236115)	96	97	1%	1%
Local Government, Excluding Education and Hospitals (903999)	92	98	7%	1%

Source: EMSI 2019.4

Table 6. Top Employers Posting Air Conditioning Mechanic Occupations in Bay Region and Silicon Valley Sub-Region (March 2019 - February 2020)

Employer	Bay	Employer	Bay	Employer	Silicon Valley
Blue Mountain Air Inc.	239	Multiband Corporation	12	Blue Mountain Air Inc	60
Sears	148	Bellows Plumbing Inc	12	Sears	32
Alliance Residential Company	46	American Technologies Inc	12	Emcor Group	20
Service Champions	37	ABM Industries	12	Alliance Residential Co	18
Emcor Group	37	Lennox	11	Service Champions	15
Sunbelt Rentals Incorporated	33	FedEx	11	Sunbelt Rentals Inc	14
Legacy Air	26	Cushman & Wakefield	11	Jones Lang Lasalle Inc	12
Jones Lang Lasalle Inc	26	Service Experts Llc	10	Cushman & Wakefield	11
Alliance Residential	26	Legacy Air Hvac	10	Alliance Residential	11
Gulfstream Strategic Placements	22	Ais Heating & Air Conditioning	10	Legacy Air	10
General Electric Company	22	Service Experts Inc	9	Gulfstream Strategic Placements	10
Semper Solaris	20	Fidelitone	9	Ars Rescue Rooter	9
Best Buy	20	Ars Rescue Rooter	9	American Wheatley Hvac Products	9
Johnson Controls Incorporated	17	American Wheatley Hvac Products	9	Stanford University	8
Kdc Service & Maintenance	16	University California	8	Jacobs Engineering Group Incorporated	8
Workyard	13	Stanford University	8	Semper Solaris	7
United Rentals	12	Service Experts	8	Lennox	7

Source: Burning Glass

Educational Supply

There are three (3) community colleges in the Bay Region issuing 130 awards on average annually (last 3 years) on TOP 09460.00 - Environmental Control Technology. There is one college (San Jose City College) in the Silicon Valley Sub-Region issuing 70 awards on average annually (last 3 years) on this TOP code.

Table 7. Awards on TOP 09460.00 - Environmental Control Technology in Bay Region

College	Sub-Region	Associates	Certificate 18+ Units	Certificate Low Unit	Total
City College of San Francisco	Mid-Peninsula			12	12
Laney College	East Bay	12	33	3	48
San Jose City College	Silicon Valley	7	63		70
Total Bay Region		19	96	15	130
Total Silicon Valley Sub-Region		7	63	0	70

Source: Data Mart

Note: The annual average for awards is 2015-16 to 2017-18.

Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 1,038 annual openings for the Air Conditioning Mechanic occupational cluster and 130 annual (3-year average) awards for an annual undersupply of 908 students. In the Silicon Valley Sub-Region, there is also a gap with 319 annual openings and 70 annual (3-year average) awards for an annual undersupply of 249 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0946.00 - Environmental Control Technology

2015-16	Bay (All CTE Programs)	Foothill College (All CTE Programs)	State (0946.00)	Bay (0946.00)	Silicon Valley (0946.00)	Foothill College (0946.00)
% Employed Four Quarters After Exit	74%	77%	75%	75%	79%	100%
Median Quarterly Earnings Two Quarters After Exit	\$10,550	\$15,301	\$10,505	\$13,526	\$15,089	n/a
Median % Change in Earnings	46%	82%	45%	54%	58%	71%
% of Students Earning a Living Wage	63%	76%	72%	78%	72%	n/a

Source: Launchboard Pipeline (version available on 3/4/20)

Skills, Certifications and Education

Table 9. Top Skills for Air Conditioning Mechanic Occupations in Bay Region (March 2019 - February 2020)

Skill	Postings	Skill	Postings	Skill	Postings
HVAC	2,167	Sales	173	Project Management	111
Repair	1,494	Carpentry	168	Condensers	110
Plumbing	666	Budgeting	164	Motor Vehicle Operation	107
Customer Service	554	Customer Contact	151	Wiring Diagrams	102
Hand Tools	395	Drywall	140	System Operation	99
Predictive / Preventative Maintenance	373	Cleaning	137	Vimeo	92
Ventilation	335	Brazing	134	Welding	92
Lifting Ability	302	Product Sales	130	Basic Mathematics	91
Power Tools	278	Painting	129	Estimating	90
Appliance Repair	241	Schematic Diagrams	129	Machinery	87
Boilers	238	Electrical Systems	127	Hazardous Material Handling	85

Duct Work	225	New Construction	124	Oil Changes	81
Scheduling	221	Test Equipment	117	Equipment Inventory	76
Wiring	210	Roofing	113	Pipe Cutters	76
Occupational Health and Safety	183	Retrofitting	112	Recruiting	75

Source: Burning Glass

Table 10. Certifications for Air Conditioning Mechanic Occupations in Bay Region (March 2019 - February 2020)

Note: 47% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

Certification	Postings	Certification	Postings
Driver's License	953	Commercial Food Equipment Service Association (CFESA)	14
Environmental Protection Agency Certification	355	Certified A+ Technician	14
EPA CFC/HCFC Certification	163	CDL Class C	13
North American Technician Excellence (NATE)	70	Good Conduct	11
Occupational Safety and Health Administration Certification	41	Hazwoper	9
EPA 608	40	CDL Class B	9
Automotive Service Excellence (ASE) Certification	35	CompTIA Network+	8
Air Conditioning (AC) Certification	24	Contractors License	6
Forklift Operator Certification	23	Security Clearance	5
Certified Pool/Spa Operator	21	Engineer in Training Certification	5
Appliance Repair Certificate	21	Certified Medical Assistant	5
First Aid CPR AED	14	Boiler Operator License	5

Source: Burning Glass

Table 11. Education Requirements for Air Conditioning Mechanic Occupations in Bay Region

Note: 58% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	951	96%
Associate Degree	37	4%
Bachelor's Degree or Higher	0	0%

Source: Burning Glass

Methodology

Occupations for this report were identified by use of skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCC Data Mart.

Sources

O*Net Online
 Labor Insight/Jobs (Burning Glass)
 Economic Modeling Specialists International (EMSI)
 CTE LaunchBoard www.calpassplus.org/Launchboard/
 Statewide CTE Outcomes Survey
 Employment Development Department Unemployment Insurance Dataset
 Living Insight Center for Community Economic Development
 Chancellor's Office MIS system

Contacts

For more information, please contact:

- Doreen O'Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, icarrese@ccsf.edu or (415) 267-6544

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

FOOTHILL COLLEGE
Temporary Program Creation Process
Feedback Form for New Programs

Until the new permanent program creation process has been determined, as part of the temporary program creation process this form shall be used by a department to gather feedback on a new program from key governance committees on campus. A complete program narrative and supporting documentation must be submitted to the groups listed below (simultaneous submission is recommended). Each committee will provide initial feedback via email within two weeks but might also provide additional feedback after their monthly meetings.

After a two-week period, regardless of whether feedback has been received from the three committees, the Division Curriculum Committee may consider the new program for approval. Following Division CC approval, please forward this completed form to the Office of Instruction.

Faculty Author(s): Brian Murphy
Division: Apprenticeship

Program Title: Air Conditioning Mechanic
Program Units: 69

Workforce/CTE Program (Y/N): YES
Please note that Workforce/CTE status is dependent on the TOP Code assigned to the program.

Type of Award:

Non-transcriptable credit certificate
 Certificate of Achievement
 Noncredit certificate

AA/AS Degree (local)
 AA-T/AS-T Degree (ADT)

EQUITY & EDUCATION https://foothill.edu/gov/equity-and-education/
Date of meeting:
Comments: <i>Program was submitted to Equity & Education on 10/22/20. No feedback has been received.</i>

REVENUE & RESOURCES https://foothill.edu/gov/revenue-and-resources/
Date of meeting: 11/6/20
Comments: No questions or comments. Support from the council.

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

ADVISORY COUNCIL https://foothill.edu/gov/council/
Date of meeting:
Comments: <i>Program was submitted to the Advisory Council on 10/22/20. No feedback has been received.</i>

Division Curriculum Committee Approval Date: September 22, 2020

Division CC Representative: Brian Murphy

Foothill College
Credit Program Narrative
Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician

Item 1. Program Goals and Objectives

Test, Adjust and Balancing (TAB) Technician is a registered apprenticeship program offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund. It provides students with both in-class instruction and paid on-the-job training with the technical aspects of heating, ventilating and air conditioning (HVAC) systems and duct systems for energy efficiency in the construction industry. The program also prepares students to take the Test and Balance Certification from International Certification Board (ICB). The program goals and objectives are to offer a solid career opportunity with livable wages along with retirement and health benefits and provide a highly trained and skilled workforce for students/apprentices in the HVAC industry.

Program Learning Outcomes:

- Students will be able to read plans and equipment performance data to determine the system design.
- Students will be able to measure airflow in HVAC systems using various instruments.
- Students will be able to adjust airflow values to achieve specified pressure differentials.
- Students will be able to make adjustment to system component for optimum efficient performance.
- Students will be able to prepare an IAQ report.
- Students will be able to perform room pressure differential readings.
- Students will be able to perform HEPA filter changes to industry standards.

Item 2. Catalog Description

Test, Adjust and Balancing (TAB) Technician is a registered apprenticeship program offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund. This 5-year apprenticeship program provides students with 216 hours per year of day or evening class instruction and paid on-the-job training with a sheet metal contractor. This is a "green" construction field that is growing due to the need for indoor air quality and energy efficiency compliance. The type of work performed can range from pressure testing, adjusting and balancing of duct systems for energy efficiency to commissioning and completing documentation of HVAC systems in residential and commercial buildings. The work condition ranges from light physical activity to maneuvering into limited access areas with tools and equipment. Good communication skills are needed to interact with clients. Technicians are held to a code of conduct to assure quality measurements. The program offers a solid career opportunity with livable wages along with retirement and health benefits and provides highly trained and skilled workforce for students/apprentices in the HVAC industry.

Per California Code of Regulations, this program is limited to students admitted to the Sheet Metal Local 104 & Bay Area Industry Training Fund's Test, Adjust, and Balancing (TAB) Technician Program.

Upon completion of the program, students will be eligible to receive a Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician from Foothill College, an Apprenticeship Completion Certificate from the California Division of Apprenticeship Standards (DAS), and a Test and Balance Certification from International Certification Board (ICB). Career opportunities include, but are not limited to: Test, Adjust and Air Balancing technician; TABB certified supervisor; service technician; Leadership in Energy and Environmental Design (LEED) inspector; sheet metal fabricator; compliance tester; entrepreneur; HVAC educator; business agent; and training coordinator.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (70 units)	APSM 155B	Air Distribution & Efficient Duct Design	2.5	Year 5, Spring
	APSM 157B	HVAC Energy Codes & Standards	2.5	Year 5, Fall
	APSM 158A	Introduction to Direct Digital HVAC Controls	2	Year 5, Fall
	APSM 171A	HVAC Trade History & Introduction to Testing, Adjusting & Balancing	3	Year 1, Fall
	APSM 171B	Basics of Airflow, Heat Energy & Heat Transfer	2.5	Year 1, Winter
	APSM 171C	Safety Training for TAB Apprenticeship	2.5	Year 1, Fall
	APSM 172A	Basic HVAC Systems, Psychrometrics, Air Pressures & Measurements of Air	2.5	Year 1, Winter
	APSM 172B	Proportional Balancing	2	Year 1, Spring
	APSM 172C	Duct Leakage Testing	2	Year 3, Winter
	APSM 173A	Electrical Fundamentals, Electric Motors & Rotational Measurements	2.5	Year 1, Spring
	APSM 173B	Temperature Measurements, Duct Systems & Basic Controls	2.5	Year 2, Fall
	APSM 173C	HVAC Fans, Fan Laws & V-Belt Drives	2.5	Year 2, Fall
	APSM 174A	Hydronic Systems, Pumps & Hydronic Balancing	2.5	Year 2, Winter
	APSM 174B	Balancing Documentation, Cooling Towers & TAB Related Skills	2	Year 2, Winter
	APSM 174C	Fire Life Safety Level 1	2.5	Year 2, Spring
	APSM 175A	TABB Technician Certification	2	Year 2, Spring
	APSM 175B	DDC Controls & Programs	2	Year 3, Spring
	APSM 175C	Fire Life Safety Level 2	2.5	Year 3, Winter
	APSM 176A	Plans & Specifications, Codes & Standards	2.5	Year 3, Fall
	APSM 176B	Basic Refrigeration & Brazing/Soldering	2.5	Year 3, Fall
APSM 176C	Clean Rooms & HEPA Filter Testing	2	Year 3, Spring	
APSM 177A	Title 24 Mechanical Acceptance Testing	2.5	Year 4, Fall	

	APSM 177B	Advanced DDC Controls/Commissioning of HVAC Systems	2	Year 4, Fall
	APSM 177C	Energy Auditing	2.5	Year 4, Winter
	APSM 178A	Indoor Air Quality	2	Year 4, Winter
	APSM 178B	Green Construction & LEED Certification for HVAC	2.5	Year 4, Spring
	APSM 178C	Foreman Training/Project Management for HVAC	2.5	Year 4, Spring
	APSM 179A	Building & Cascading Pressures/Air Change Testing	2	Year 5, Winter
	APSM 179B	Sound & Vibration in HVAC Systems	2.5	Year 5, Winter
	APSM 179C	Biological Safety Cabinets/Laboratory Fume Hoods	2	Year 5, Spring

TOTAL UNITS: 70 units

Proposed Sequence:

Year 1, Fall = 5.5	Year 2, Fall = 10
Year 1, Winter = 5	Year 2, Winter = 4.5
Year 1, Spring = 4.5	Year 2, Spring = 4.5
Year 3, Fall = 5	Year 4, Fall = 4.5
Year 3, Winter = 4.5	Year 4, Winter = 4.5
Year 3, Spring = 4	
Year 5, Fall = 4.5	
Year 5, Winter = 4.5	
Year 5, Spring = 4.5	

TOTAL UNITS: 70 units

Item 4. Master Planning

The Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician aligns with the Foothill College Mission statement well. As part of an approved Division of Apprenticeship Standards apprenticeship program, it serves 14 counties in Northern California and provides high level technical training to diverse students with different socio-economic backgrounds and ethnicities. The program provides students with livable wages along with retirement and health benefits for them and their families in the most prosperous state.

Item 5. Enrollment and Completer Projections

Currently, there are 80 students enrolled in the program. The retention rate for this program is between 90 to 95 percent because it offers students with employment opportunities. 9 students are projected to graduate in 2020-21. 70 students are project to graduate in 2025-2026.

Course #	Title	Year 1 (FY 2018-19)		Year 2 (FY 2019-20)	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APSM 155B	Air Distribution & Efficient Duct Design	0	0	0	0
APSM 157B	HVAC Energy Codes & Standards	1	10	2	20
APSM 158A	Introduction to Direct Digital HVAC Controls	0	0	1	6
APSM 171A	HVAC Trade History & Introduction to Testing, Adjusting & Balancing	1	8	2	13
APSM 171B	Basics of Airflow, Heat Energy & Heat Transfer	1	10	1	11
APSM 171C	Safety Training for TAB Apprenticeship	0	0	3	26
APSM 172A	Basic HVAC Systems, Psychrometrics, Air Pressures & Measurements of Air	3	42	2	21
APSM 172B	Proportional Balancing	6	68	2	21
APSM 172C	Duct Leakage Testing	0	0	0	0
APSM 173A	Electrical Fundamentals, Electric Motors & Rotational Measurements	1	13	1	9
APSM 173B	Temperature Measurements, Duct Systems & Basic Controls	0	0	1	13
APSM 173C	HVAC Fans, Fan Laws & V-Belt Drives	0	0	2	22
APSM 174A	Hydronic Systems, Pumps & Hydronic Balancing	1	5	1	13
APSM 174B	Balancing Documentation, Cooling Towers & TAB Related Skills	1	5	0	0
APSM 174C	Fire Life Safety Level 1	1	5	1	13
APSM 175A	TABB Technician Certification	10	130	10	130
APSM 175B	DDC Controls & Programs	1	10	1	13
APSM 175C	Fire Life Safety Level 2	1	10	1	5
APSM 176A	Plans & Specifications, Codes & Standards	1	7	1	10
APSM 176B	Basic Refrigeration & Brazing/Soldering	1	7	1	10
APSM 176C	Clean Room & HEPA Filter Testing	1	7	1	10

APSM 177A	Title 24 Mechanical Acceptance Testing	1	130	13	171
APSM 177B	Advanced DDC Controls/ Commissioning of HVAC Systems	1	6	3	28
APSM 177C	Energy Auditing	1	6	1	6
APSM 178A	Indoor Air Quality	1	6	2	13
APSM 178B	Green Construction & LEED Certification for HVAC	1	6	1	6
APSM 178C	Foreman Training/Project Management for HVAC	1	6	1	6
APSM 179A	Building & Cascading Pressures/Air Change Testing	0	0	0	0
APSM 179B	Sound & Vibration in HVAC Systems	1	5	0	0
APSM 179C	Biological Safety Cabinets/ Laboratory Fume Hoods	1	6	0	0

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Test, Adjust and Balancing (TAB) Technician is an addition to our existing CTE programs and registered apprenticeship programs.

Item 7. Similar Programs at Other Colleges in Service Area

According to the labor market report provided by SF Center of Excellence, five colleges in the Bay Region issued 17 awards on TOP Code 0946.10 - Energy Systems Technology, with nine of these in the Silicon Valley Sub-Region. However, our program is unique because it provides comprehensive in-class instruction and paid on-the-job training. In addition, Test, Adjust and Balancing (TAB) Technician is a registered apprenticeship program that is offered in partnership with Sheet Metal Local 104 and Bay Area Training Fund.

Additional Information Required for State Submission:

TOP Code: 0946.10 - Energy Systems Technology

Annual Completers: 12-18

Net Annual Labor Demand: 1039

Faculty Workload: 3 full-time and 6 part-time for 5th year students

New Faculty Positions: 0

New Equipment: 0

New/Remodeled Facilities: 0

Library Acquisitions: 0

Gainful Employment: Yes

Program Review Date: December 2023

Distance Education: 0%

Testing, Adjusting and Balancing Occupations Labor Market Information Report Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
March 2020

Recommendation

Based on all available data, there appears to be an undersupply of Testing, Adjusting and Balancing workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 1,039 students in the Bay region and 56 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0946.10 - Energy Systems Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

Introduction

This report profiles Testing, Adjusting and Balancing Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a program modification at Foothill College.

- **Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC 49-9021):** Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.
Entry-Level Educational Requirement: *Postsecondary nondegree award*
Training Requirement: *Long-term on-the-job training*
Percentage of Community College Award Holders or Some Postsecondary Coursework: 42%
- **Metal-Refining Furnace Operators and Tenders (SOC 51-4051):** Operate or tend furnaces, such as gas, oil, coal, electric-arc or electric induction, open-hearth, or oxygen furnaces, to melt and refine metal before casting or to produce specified types of steel. Excludes "Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic" (51-4191).
Entry-Level Educational Requirement: *High school diploma or equivalent*
Training Requirement: *Moderate-term on-the-job training*
Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

Occupational Demand

Table 1. Employment Outlook for Testing, Adjusting and Balancing Occupations in Bay Region

Occupation	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	8,012	9,046	1,034	13%	5,192	1,038	\$20.36	\$27.98
Metal-Refining Furnace Operators and Tenders	133	133	0	0%	86	17	\$16.91	\$18.97
Total	8,146	9,179	1,034	13%	5,278	1,056	\$20.30	\$27.84

Source: EMSI 2019.4

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Testing, Adjusting and Balancing Occupations in Silicon Valley Sub-Region

Occupation	2018 Jobs	2023 Jobs	5-Yr Change	5-Yr % Change	5-Yr Openings	Average Annual Openings	25% Hourly Wage	Median Hourly Wage
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	580	613	33	6%	326	65	\$20.04	\$28.16
Metal-Refining Furnace Operators and Tenders	<10	10			<10	Insf. Data	Insf. Data	Insf. Data
TOTAL	580	623	43	7%	326	65	\$20.04	\$28.16

Source: EMSI 2019.4

Silicon Valley Sub-Region includes Santa Clara County

Educational Supply

There are five (5) community colleges in the Bay Region issuing 17 awards on average annually (last 3 years) on TOP 0946.10 - Energy Systems Technology. There is one college in the Silicon Valley Sub-Region issuing nine (9) awards on average annually (last 3 years) on this TOP code.

Table 7. Awards on TOP 0946.10 - Energy Systems Technology in Bay Region

College	Sub-Region	Associates	Certificate 18+ Units	Certificate Low Unit	Total
Cabrillo College	Santa Cruz-Monterey	1	1		2
De Anza College	Silicon Valley	2	2	5	9
Diablo Valley College	East Bay	1	1		2
Santa Rosa Junior College	North Bay			2	2
Skyline College	Mid-Peninsula	1	1		2
Total Bay Region		5	5	7	17
Total Silicon Valley Sub-Region		2	2	5	9

Source: Data Mart

Note: The annual average for awards is 2015-16 to 2017-18.

Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 1,056 annual openings for the Testing, Adjusting and Balancing occupational cluster and 17 annual (3-year average) awards for an annual undersupply of 1,039 students. In the Silicon Valley Sub-Region, there is also a gap with 65 annual openings and 9 annual (3-year average) awards for an annual undersupply of 56 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0946.10 - Energy Systems Technology

2015-16	Bay (All CTE Programs)	Foothill College (All CTE Programs)	State (0946.10)	Bay (0946.10)	Silicon Valley (0946.10)	Foothill College (0946.10)
% Employed Four Quarters After Exit	74%	77%	60%	50%	48%	n/a
Median Quarterly Earnings Two Quarters After Exit	\$10,550	\$15,301	\$9,027	\$10,185	\$21,056	n/a
Median % Change in Earnings	46%	82%	48%	27%	11%	n/a
% of Students Earning a Living Wage	63%	76%	55%	47%	n/a	n/a

Source: Launchboard Pipeline (version available on 3/9/20)

Methodology

Occupations for this report were identified by use of skills listed in O*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCCO Data Mart.

Sources

O*Net Online
 Labor Insight/Jobs (Burning Glass)
 Economic Modeling Specialists International (EMSI)
 CTE LaunchBoard www.calpassplus.org/Launchboard/
 Statewide CTE Outcomes Survey
 Employment Development Department Unemployment Insurance Dataset
 Living Insight Center for Community Economic Development
 Chancellor's Office MIS system

Contacts

For more information, please contact:

- Doreen O'Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

FOOTHILL COLLEGE
Temporary Program Creation Process
Feedback Form for New Programs

Until the new permanent program creation process has been determined, as part of the temporary program creation process this form shall be used by a department to gather feedback on a new program from key governance committees on campus. A complete program narrative and supporting documentation must be submitted to the groups listed below (simultaneous submission is recommended). Each committee will provide initial feedback via email within two weeks but might also provide additional feedback after their monthly meetings.

After a two-week period, regardless of whether feedback has been received from the three committees, the Division Curriculum Committee may consider the new program for approval. Following Division CC approval, please forward this completed form to the Office of Instruction.

Faculty Author(s): Brian Murphy
Division: Apprenticeship

Program Title: Test, Adjust and Balancing (TAB) Technician
Program Units: 70

Workforce/CTE Program (Y/N): YES
Please note that Workforce/CTE status is dependent on the TOP Code assigned to the program.

Type of Award:

- Non-transcriptable credit certificate AA/AS Degree (local)
 Certificate of Achievement AA-T/AS-T Degree (ADT)
 Noncredit certificate

EQUITY & EDUCATION https://foothill.edu/gov/equity-and-education/
Date of meeting:
Comments: <i>Program was submitted to Equity & Education on 10/22/20. No feedback has been received.</i>

REVENUE & RESOURCES https://foothill.edu/gov/revenue-and-resources/
Date of meeting: 11/6/20
Comments: No questions or comments. Support from the council.

Ensure you're using the current version of this form by downloading a fresh copy from [the CCC webpage!](#)

ADVISORY COUNCIL https://foothill.edu/gov/council/
Date of meeting:
Comments: <i>Program was submitted to the Advisory Council on 10/22/20. No feedback has been received.</i>

Division Curriculum Committee Approval Date: September 22, 2020

Division CC Representative: Brian Murphy

FOOTHILL COLLEGE
College Curriculum Committee
Proposal to Create New Ad Hoc Committee: Curriculum Best Practices

Name of Committee

Curriculum Best Practices (CBP) Ad Hoc Committee

Process

- A. The committee shall document best practices for curriculum development and management within a decentralized curriculum model.
- B. To aid in the documentation process, CCC highly recommends that the committee:
 - a. Gather input from the curriculum reps from each division, including any resources and/or platforms (e.g., Canvas sites) currently in use
 - b. Review resources published at the state level (e.g., ASCCC, CCCCCO) for possible adaptation for local use
 - c. Review any previous handbooks/resources published locally (e.g., CCC Orientation PowerPoint, Office of Instruction handouts/checklists)
- C. CCC highly recommends that the resulting handbook/documentation not be created in hardcopy format; instead, a dynamic platform shall be used (e.g., Canvas).
- D. The resulting documentation should not be presented as the definitive approach for all divisions; instead, it shall be a list of suggestions that each division can adapt to fit their unique needs.

Structure

- A. The committee shall have a chairperson.
- B. The committee membership shall be open to all college faculty.

Time Frame

- A. The start date for the committee shall be the date of approval of this proposal.
- B. The committee chairperson shall present the committee's findings and recommendation in winter of 2021.

FOOTHILL COLLEGE
College Curriculum Committee
Proposal to Create New Ad Hoc Committee: Foothill General Education Process

Name of Committee

Foothill General Education (GE) Process Ad Hoc Committee

Process

- A. The committee shall review the current General Education Subcommittee structure to determine if modifications to that structure are necessary. This review shall include the current process used for GE course applications submitted by faculty, as well as the current process used for GE course substitution forms submitted by students.
- B. Additionally, CCC highly recommends that the committee draft the following, for which processes do not currently exist:
 - a. Process to address insufficient membership in the subcommittee for a particular GE Area
 - b. Process for bringing GE applications to CCC in cases where the subcommittee is overloaded or has insufficient membership

Structure

- A. The committee shall have a chairperson.
- B. The committee membership shall be open to all college faculty.
- C. Ideally, the committee membership shall include one or more counselors, particularly to aid in the discussion of course substitution forms

Time Frame

- A. The start date for the committee shall be the date of approval of this proposal.
- B. The committee chairperson shall present the committee's findings and recommendation in fall of 2020.