

College Curriculum Committee Meeting Agenda

Tuesday, June 17, 2014

2:00 p.m. - 3:30 p.m.

President's Conference Room

Item	Action	Attachment	Presenter/Time
1. Minutes: June 3, 2014	Action	#6/17/14-1	Escoto - 3 min
2. Announcements: <ul style="list-style-type: none"> a. CCC Notification of Proposed Prereq/Coreqs b. New Course Proposals c. Report Out from Divisions 	Information	#6/17/14-2 #6/17/14-3 thru 23	Escoto - 3 mins Escoto - 3 min Curr Reps - 7 min
3. TMC Opportunities	Discussion	#6/17/14-31 thru 33	Escoto - 7 min
4. Threshold Concepts/Wicked Curric	Discussion		Escoto/Holcroft - 10 min
5. CCC Representative Participation	Discussion		Escoto - 10 min
5. New Program Approval <ul style="list-style-type: none"> a. Air Conditioning & Refrigeration Tech AS b. Plumbing Technology AS c. Steamfitting & Pipefitting AS d. Refrigeration & AC Mechanical Service CA e. Residential Plumbing CA f. Plumbing CA g. Steamfitting/Pipefitting CA 	Action Action Action Action Action Action	#6/17/14-24 #6/17/14-25 #6/17/14-26 #6/17/14-28 #6/17/14-29 #6/17/14-27 #6/17/14-30	Escoto - 10 min
5. Year in Review/Priority List for 2014-15	Discussion		Escoto - 20 min

Consent Calendar:

None

Attachment List:

- #6/17/14-1 Draft Minutes: June 3, 2014
- #6/17/14-2 CCC Notification of Proposed Prerequisites & Corequisites
- #6/17/14-3 New Course Proposal - ART 5C
- #6/17/14-4 New Course Proposal - ART 45G
- #6/17/14-5 New Course Proposal - ART 45J
- #6/17/14-6 New Course Proposal - ART 74A
- #6/17/14-7 New Course Proposal - ART 76
- #6/17/14-8 New Course Proposal - ART 77
- #6/17/14-9 New Course Proposal - ART 77A
- #6/17/14-10 New Course Proposal - LINC 77
- #6/17/14-11 New Course Proposal - LINC 77A
- #6/17/14-12 New Course Proposal - LINC 77B
- #6/17/14-13 New Course Proposal - LINC 77C
- #6/17/14-14 New Course Proposal - LINC 77D
- #6/17/14-15 New Course Proposal - MDIA 6A
- #6/17/14-16 New Course Proposal - MDIA 8A
- #6/17/14-17 New Course Proposal - MDIA 8B
- #6/17/14-18 New Course Proposal - MUS 66G
- #6/17/14-19 New Course Proposal - MUS 80B
- #6/17/14-20 New Course Proposal - THTR 25B
- #6/17/14-21 New Course Proposal - THTR 25C

#6/17/14-22	New Course Proposal - THTR 47D
#6/17/14-23	New Course Proposal - THTR 48D
#6/17/14-24	Air Conditioning & Refrigeration Technology AS
#6/17/14-25	Plumbing Technology AS
#6/17/14-26	Steamfitting & Pipefitting AS
#6/17/14-27	Refrigeration & Air Conditioning Mechanical Service CA
#6/17/14-28	Residential Plumbing CA
#6/17/14-29	Plumbing CA
#6/17/14-30	Steamfitting & Pipefitting CA
#6/17/14-31	TMC-Elementary Teacher Ed
#6/17/14-32	TMC- Film, Television and Electronic Media
#6/17/14-33	TMC- Nutrition & Dietetics

2013 -2014 Curriculum Committee Meetings

Fall 2013 Quarter:	Winter 2014 Quarter	Spring 2014 Quarter
10/1/13	1/21/14	4/15/14
10/15/13	2/4/14	5/6/14
11/5/13	2/18/14	5/20/14
11/19/13	3/4/14	6/3/14
12/3/13	3/18/14	6/17/14

2014 -2015 Curriculum Committee Meetings

Fall 2014 Quarter:

10/7/14
10/21/14
11/4/14
11/18/14
12/2/14

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

2014-2015 Curriculum Deadlines

12/1/14	Deadline to submit courses to CSU for CSU GE approval.
12/1/14	Deadline to submit courses to UC/CSU for IGETC approval.
12/5/14	COR/Title 5 Updates for Summer 2015.
3/2/15	Curriculum Sheet Updates for 2015-16.
6/1/15	Deadline to submit new/revised courses to UCOP for UC transferability
<i>Ongoing</i>	Submission of courses for C-ID approval and course-to-course articulation with individual colleges and universities.

2014-2015 Professional Development Opportunities & Conferences of Interest

6/12-14/14	ASCCC Faculty Leadership Institute, Paradise Point Hotel, San Diego
7/10-12/14	ASCCC Curriculum Institute, Hayes Mansion, San Jose Ca

Distribution:

Shawna Aced (Instr), Micaela Agyare (LIBR), Kathy Armstrong (PSME), Rachelle Campbell (BH), Bea Cashmore (ALD), Jerry Cellilo (CNSL), Dolores Davison (AS President), Bernie Day (Articulation Officer), Teresa de la Cruz (Articulation), Isaac Escoto (Faculty Co-Chair), Brian Evans (BSS), Marnie Francisco (PSME), Stephanie Franco (Evaluations), Konnilyn Fieg (BSS), Hilary Gomes (FA), Brenda Hanning (BH), Robert Hartwell (FA), Kay Jones (LIBR), Marc Knobel (PSME), Andrew LaManque (AVP, Instruction), Allison Lenkeit Meezan (BSS), Don MacNeil (KA), Kimberlee Messina (VP, Instruction, Administrator co-chair), Peter Murray (Dean, PSME), Simon Pennington (FA), Barbara Shewfelt (P E), Paul Starer (Dean, L A), Kella Svetich (L A)

COLLEGE CURRICULUM COMMITTEE

Committee Members - 2013-14

Meeting Date: 6/17/14

Co-Chairs (2)

<input checked="" type="checkbox"/> Isaac Escoto	7350	Vice President, Academic Senate (tiebreaker vote only)
<input checked="" type="checkbox"/> <u>Abby</u> Kimberlee Messina	7209	Vice President, Instruction

Voting Membership-12 total; 1 vote per division

<input checked="" type="checkbox"/> Micaela Agyare	7086	LIBR	agyaremicaela@foothill.edu
<input checked="" type="checkbox"/> Kathy Armstrong	7487	PSME	armstrongkathy@foothill.edu
<input checked="" type="checkbox"/> Rachelle Campbell	7469	BH	campbellrachelle@foothill.edu
<input checked="" type="checkbox"/> Bea Cashmore	7094	ALD	cashmorebeatrix@foothill.edu
<input checked="" type="checkbox"/> Jerry Cellilo	7224	CNSL	cellilojerry@fhda.edu
<input checked="" type="checkbox"/> <u>Vac</u> Bernie Day	7225	Articulation	daybernie@foothill.edu
<input type="checkbox"/> Brian Evans	7575	BSS	evansbrian@foothill.edu
		CNSL	
<input checked="" type="checkbox"/> Marnie Francisco	7420	PSME	franciscomarnie@foothill.edu
<input checked="" type="checkbox"/> Konnilyn Fieg	7430	BSS	feigkonnilyn@foothill.edu
<input checked="" type="checkbox"/> Hilary Gomes	7585	FA	gomeshilary@foothill.edu
<input type="checkbox"/> Brenda Hanning	7466	BH	hanningbrenda@foothill.edu
<input type="checkbox"/> Robert Hartwell	7016	FA	hartwellrobert@fhda.edu
<input type="checkbox"/> Kay Jones	7602	LIBR	joneskay@foothill.edu
<input checked="" type="checkbox"/> Marc Knobel	7049	PSME	knobelmarc@foothill.edu
<input checked="" type="checkbox"/> <u>Abby</u> Allison Lenkeit Meezan	7422	BSS	meezankaren@foothill.edu
<input checked="" type="checkbox"/> Don MacNeil	6967	K A	macneildon@foothill.edu
<input checked="" type="checkbox"/> Simon Pennington	7015	F A	penningtonsimon@fhda.edu
<input type="checkbox"/> Barbara Shewfelt	7658	K A	shewfeltbarbara@foothill.edu
<input checked="" type="checkbox"/> Kella Svetich	7924	L A	svetichkella@foothill.edu
<input type="checkbox"/> Kurt Hueg	7394	Dean	huegjurt@foothill.edu
<input checked="" type="checkbox"/> Peter Murray	7472	Dean	murraypeter@foothill.edu
<input checked="" type="checkbox"/> Paul Starer	7227	Dean	starerpaul@foothill.edu

Non-Voting Members (4)

<input type="checkbox"/> Teresa de la Cruz	7638	Articulation Assistant	delacruzteresa@foothill.edu
<input type="checkbox"/> Stephanie Franco	7231	Evaluations	francostephanie@foothill.edu
<input checked="" type="checkbox"/> Shawna Aced	7371	Curr/Schedule Asst.	acedshawna@foothill.edu
<input checked="" type="checkbox"/> Cori Nuñez	7439	Curr Coordinator	nunezcori@foothill.edu
<input type="checkbox"/> Chris Ju		ASFC	

Visitors:

Carolyne Hollcroft AS Pres. Andrew Le Marque, AIP,
John Mumford, VP, Manalette Salazar, Dean BH

College Curriculum Committee
Meeting Minutes
Tuesday, June 3, 2014
2:02 p.m. - 3:10 p.m.
President's Conference Room

<u>Item</u>	<u>Discussion</u>
1. Minutes: May 20, 2014	Minutes adjusted to correct the wording that suggested "booster-type" seminar courses in 2a; add the attendees to the minutes. Move to approve with corrections (Hartwell, Armstrong) Approved , 1 abstention.
2. Announcements: <ul style="list-style-type: none"> a. Curriculum Systems Investigation b. Clarification of Lecture & Lab Definitions c. Report Out from Divisions 	Speaker: Isaac Escoto a. Escoto announced that the curriculum team will be researching options to replace the C3MS. Our system is a home-grown system and as such does not feed info to the state curriculum system. Such interaction would save us time and effort. b. Messina reiterated that the definitions that have been shared with you are the result of the task force. These definitions were shared with you at the last CCC meeting (5/20/14). Please remember to check with our office to ensure that the changes you intend to make to your outlines do not cause articulation or other major issues. A new load table is being prepared and will be provided by the end of the quarter. The new loads will go into effect Fall 2014. Decisions for L/L will go into effect for Summer 2015 (due Dec 5 th). c. Division Report Out: <ul style="list-style-type: none"> • Articulation: New AA-T/AS-T have been vetted: Engineering (vetting now), Chemistry (done vetting), Information & Communication Technologies, Biology (waiting for TMC), Environmental Horticulture, Nutrition & Dietetics, Public Health Science (vetting now), Child & Adolescent Development, Film & TV (complications). The C-ID deadline for course approval has been extended from this June to June 2015. • ADP: Bea is looking for a replacement
3. Consent Calendar <ul style="list-style-type: none"> a. Stand Alone Applications b. Transfer Degree Applications 	Speaker: Isaac Escoto Stand Alone Applications (LINC 57 and 67) and transfer degree applications (Communication Studies, Early Childhood Education, Economics, Political Science, Spanish and Theatre Arts). M/S (Day, Cashmore) Approved .
4. New Program Approval <ul style="list-style-type: none"> a. GIST AS and Certificates b. Air Conditioning & Refrigeration Tech AS c. Plumbing Technology AS d. Steamfitting & Pipefitting AS e. Refrigeration & AC Mechanical Service CA f. Residential Plumbing CA g. Plumbing CA h. Steamfitting/Pipefitting CA 	Speaker: Isaac Escoto , a. GIST applications - M/S (McNeil, Hanning) Approved . b-h. Mark Likeness, Pipe Trades, explained the purpose and need of the apprenticeship programs in the area. The first application has been edited and the writer will be making similar corrections to the remaining applications for action at the next meeting.
5. Year in Review/Priority List for 2014-15	Speaker: Isaac Escoto Escoto reviewed the Topics list and compiled a summary of this year's completed items from our minutes. Some of this year's successes include: a single content review form, updated Distance Education Addendum, curriculum sheets online only, etc. We need to think about the topics we'd

	<p>like to cover in the next year.</p> <p>Add:</p> <ul style="list-style-type: none">• Unit counts and how that effects ADTs.• Preparedness for students (are we trying to get students that are perhaps low end prepared, packing the course with college skills so they can catch up and teach the material we need to for the course)• Multiple measures• Pending Legislation• Alternative credit methods (CLEP, CBE, AP policy)• High school articulation• Title 5 education (credit vs. non-credit, stand alone)• GE: local vs. IGETC, CSU-GE
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Attendees: Micaela Agyare (LIBR), Kathy Armstrong (PSME), Rachelle Campbell (BH), Bea Cashmore (ALD), Bernie Day (Articulation Officer), David Ellis (Apprenticeship), Isaac Escoto (Faculty Co-Chair), Marnie Francisco (PSME), Hilary Gomes (FA), Brenda Hanning (BH), Robert Hartwell (FA), Kurt Hueg (Dean, BSS), Kay Jones (LIBR), Marc Knobel (PSME), Andrew LaManque (AVP Instruction), Allison Lenkeit Meezan (BSS), Mark Likeness (APRT faculty), Don MacNeil (KA), Kimberlee Messina (VP, Instruction, Administrator co-chair), Kella Svetich (L A)

Minutes Recorded by: C. Nuñez

CCC Notification of Proposed Prerequisites/Co-Requisites

The following courses are currently undergoing review for requisite additions or changes. Please contact the Division Curr Rep if you have any questions or comments.

Target Course Number & Title	Editor	Requisite Course Number & Title	IR Data (Y or N)
ENGL 1B Composition, Critical Reading & Thinking	K. Svetich	Prereq: ENGL 1A, 1AH, 1S and 1T or ESLL 26.	
ENGL 1BH Honors Composition, Critical Reading & Thinking	K. Svetich	Prereq: ENGL 1A, 1AH, 1S and 1T or ESLL 26.	

Foothill College
College Curriculum Committee
New Course Proposal

*This form should be completed by the faculty author as preparation to writing a new course. Your division CC rep can assist you in completing it appropriately, and will forward it to the Office of Instruction for inclusion as an announcement at the next available CCC meeting. The purpose of this form is **interdisciplinary communication**. The responsibility to rigorously review and approve new courses remains with the divisional curriculum committees.*

Date Proposal Given to Division CCC Rep: 6-4-14

Faculty Author: Hilary Gomes

Proposed Number: ART 5C

Proposed Transferability: UC/CSU

Proposed Title: Sculpture

Proposed Catalog Description:

Introduction to three-dimensional sculptural principles, techniques, and concepts utilizing a wide range of materials and practices. Various sculpture methods are practiced with attention to creative self-expression and historical context.

Proposed Discipline: Art

Proposed Need/Justification Statement: Restricted support course on the AA Degree in Art and the Certificate in Achievement in Art

To which Degree(s) or Certificate(s) would this course potentially be added? Studio Art (ADT) Transfer Degree, AA in Art, and the Certificate Achievement in Art

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

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Date Proposal Given to Division CCC Rep: 5/29/14

Faculty Author: Andy Ruble

Proposed Number: ART 45G

Proposed Title: Handbuilding II

Proposed Catalog Description:

An intermediate-level course in ceramic handbuilding that builds upon concepts taught in ART 45A. Students will learn techniques to combine previously learned coil, slab, and pinch construction processes. Students will learn to conduct glaze testing to best resolve visual problems.

Proposed Discipline:

Art

Proposed Need/Justification Statement:

This course is a restricted support course for the AA in Art

To which Degree(s) or Certificate(s) would this course potentially be added?

This class will be a support course for the AA degree in Art.

Comments & Other Relevant Information for Discussion:

Instruction Office:

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Date number assigned/notification:

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Date Proposal Given to Division CCC Rep: 5/29/14

Faculty Author: Andy Ruble

Proposed Number: ART 45J

Proposed Title: Raku Glazing & Firing Processes

Proposed Catalog Description:

This course is a survey of historical and contemporary raku firing processes. Students will explore a variety of raku firing techniques that involve testing glazes, varying clay bodies, surface treatments, and an array of raku-specific decorating techniques.

Proposed Discipline:

Art

Proposed Need/Justification Statement:

This course is a restricted support course for the AA in Art

To which Degree(s) or Certificate(s) would this course potentially be added?

This class will be a support course for the AA degree in Art.

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

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College Curriculum Committee
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Date Proposal Given to Division CCC Rep: 6-3-14
Faculty Author: Hilary Gomes

Proposed Number: ART 74A
Proposed Transferability: CSU
Proposed Title: Industrial Design Visualization II

Proposed Catalog Description:
Continuation of Art 74 Industrial Design Visualization I, hands-on and digital visualization course in the rapid sketching processes utilized by industrial designers. This class is a practical, theoretical and creative course that emphasizes visualization, problem solving and communication drawing skills used by contemporary product and industrial designers. Hands-on and digital sketching techniques including rendering volumes using lighting effects, two dimensional visual textures, markers techniques, orthogonal views and linear perspective specific to the human form, artistic component layout drawings, explanatory drawings, creative thumbnail sketching and idea development.

Proposed Discipline: ART

Proposed Need/Justification Statement: This course is a restricted support course for the AA degree and Certificate of Achievement in Art.

To which Degree(s) or Certificate(s) would this course potentially be added? AA degree in Art and the Certificate of Achievement in Art.

Comments & Other Relevant Information for Discussion:

Instruction Office:
Date presented at CCC:
Number assigned:
Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 6.2.14

Faculty Author: Simon Pennington

Proposed Number: ART 76

Proposed Transferability: CSU

Proposed Title: History of Industrial Design

Proposed Catalog Description:

The Student will study the history of Industrial Design from the beginning of the Industrial Revolution to the present. Emphasis will be placed on the role of design in modern society and everyday objects will be studied for their political, social, and cultural relevance in addition to their aesthetic and technological significance.

Proposed Discipline: Art History

Proposed Need/Justification Statement:

This course will be a restricted support course for the A.A. degree in Art History, the Certificate of Achievement in Art History, and could be added to the support courses for the ADT (AA-T) transfer degree in Art History. It will also support the Industrial Design courses we are currently proposing with an eventual goal of offering an Associates Degree in Industrial Design.

To which Degree(s) or Certificate(s) would this course potentially be added?

A.A. degree in Art History

Certificate of Achievement in Art History

Restricted support course for the A.A. in ART.

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

**Foothill College
College Curriculum Committee
New Course Proposal**

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Date Proposal Given to Division CCC Rep: 6-3-14
Faculty Author: Hilary Gomes

Proposed Number: ART 77
Proposed Transferability: CSU
Proposed Title Industrial Design Foundations I

Proposed Catalog Description:

Introduction to the processes and presentation of foundation level basic hands-on three-dimensional Industrial Design. This course emphasizes the principles of design and the fundamental aesthetic application of color, texture, shape, form, structure and space through the functional Industrial design problems. Introduction to hands-on model making using a wide range of three-dimensional media such as paint, textured surfaces, clay, plaster molds and wood.

Proposed Discipline: ART

Proposed Need/Justification Statement:

This course is a restricted support course for the A.A. degree in Art and Certificate of Achievement in Art.

To which Degree(s) or Certificate(s) would this course potentially be added?

AA degree in Art and the Certificate of Achievement in Art.

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

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Date Proposal Given to Division CCC Rep: 6-3-14
Faculty Author: Hilary Gomes

Proposed Number: ART 77A
Proposed Transferability: CSUS
Proposed Title Industrial Design Foundations II

Proposed Catalog Description:

Continuation of Industrial Design Foundations I, introduction to hands-on processes of foundation level Industrial and Product Designers. Continue integrating of the principles of design and the fundamental aesthetic application of color, texture, shape, volume, structure and space through and hands-on projects. Generate three-dimensional industrial design three-dimensional printing prototypes, mock-ups, and models using industry standard techniques.

Proposed Discipline: ART

Proposed Need/Justification Statement:

This course is a restricted support course for the A.A. degree in Art and Certificate of Achievement in Art.

To which Degree(s) or Certificate(s) would this course potentially be added?

AA degree in Art and the Certificate of Achievement in Art.

Comments & Other Relevant Information for Discussion:

Instruction Office:

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Date Proposal Given to Division CCC Rep: May 6, 2014

Faculty Author: Steven McGriff

Proposed Number: LINC 77

Proposed Transferability: CSU

Proposed Title: Design Thinking Overview

Proposed Catalog Description:

Students learn an overview of the design thinking methodology and its applications in education, business, industry and government. Focus is on introducing all aspects of the design cycle through inquiry-based facilitation and engaging immersive activities to develop understanding of the design thinking process. Using a few design challenge explorations, students will touch upon the fundamental design thinking values of bias towards doing, iteration, rapid prototyping and human-centered design, as well as create a list of resources for continued learning.

Advisory: Experience with internet software tools, browsers, hyperlinks, online media resources, and basic skills using a computer.

Proposed Discipline: Instructional Design and Technology

Proposed Need/Justification Statement:

This Workforce Education course provides specialized training for strategic partners in college vocational programs, high schools, economic development initiatives, ROP, and capacity development projects for stakeholders in grades 7-12. The primary target audience include educators and students from school districts within the FHDA district service area: Mountain View-Whisman, Palo Alto Unified, Sunnyvale Elementary, Mountain View-Los Altos Union HSD, Los Altos Elementary, Fremont Union HSD, and Cupertino Union. The secondary target audience includes schools and residents throughout San Mateo, Santa Clara, Santa Cruz, and Alameda counties.

To which Degree(s) or Certificate(s) would this course potentially be added?

Certificate of Achievement in Instructional Design and Technology

Comments & Other Relevant Information for Discussion:

This 0.5 unit course is the first of five courses, offering an overview of Design Thinking. The other courses in sequence are: Course 2/ Design Thinking Process (1 unit); 3/Design Thinking and Tinkering (1 unit); 4/Design Thinking in Education (1 unit); 5/Design Thinking Challenges (1 unit)

These courses will be situated in the proposed Instructional Design & Technology Certificate of Achievement, designed to prepare students for careers in education, instructional design, or training with the requisite knowledge and skills of instructional design to effectively analyze, design, develop, utilize, manage, and evaluate instructional and technological solutions to improve teaching, training, and learning in all education environments and corporate or organization training settings.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

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Date Proposal Given to Division CCC Rep: May 6, 2014

Faculty Author: Steven McGriff

Proposed Number: LINC 77A

Proposed Transferability: CSU

Proposed Title: Design Thinking Process

Proposed Catalog Description:

Design thinking is a universal process for generating ideas to solve real world challenges. Student participants from community, business, and education work together in groups to develop knowledge and skills about the five principles of design thinking that was originally created by the d.school at Stanford University. Emphasis is on learning and practicing the design thinking principles (empathize, define, ideate, prototype, test) to solve a selected real world challenge. Students delve deeper into design thinking to hone skills in facilitating the design thinking methodology when working in groups. Special attention is given to using the design thinking process for exploring how to bring positive disruptions and shifts in mindsets in order to arrive at innovative solutions. Topics include human centered design versus problem centered design, embracing pivoting, failing fast and often, developing rough prototypes for feedback.

Proposed Discipline: Instructional Design and Technology

Proposed Need/Justification Statement:

This Workforce Education course provides specialized training for strategic partners in college vocational programs, high schools, economic development initiatives, ROP, and capacity development projects for stakeholders in grades 7-12. The primary target audience include educators and students from school districts within the FHDA district service area: Mountain View-Whisman, Palo Alto Unified, Sunnyvale Elementary, Mountain View-Los Altos Union HSD, Los Altos Elementary, Fremont Union HSD, and Cupertino Union. The secondary target audience includes schools and residents throughout San Mateo, Santa Clara, Santa Cruz, and Alameda counties.

To which Degree(s) or Certificate(s) would this course potentially be added?

Certificate of Achievement in Instructional Design and Technology

Comments & Other Relevant Information for Discussion:

This 1 unit course is the second of five LINC courses on design thinking. The series is: Course 1/ Design Thinking Overview (0.5 unit); 3/Design Thinking and Tinkering (1 unit); 4/Design Thinking in Education (1 unit); 5/Design Thinking Challenges (1 unit) These courses will be situated in the proposed Instructional Design & Technology Certificate of Achievement, designed to prepare students for careers in education, instructional design, or training with the requisite knowledge and skills of instructional design to effectively analyze, design, develop, utilize, manage, and evaluate instructional and technological solutions to improve teaching, training, and learning in all education environments and corporate or organization training settings.

Instruction Office:

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Date Proposal Given to Division CCC Rep: May 6, 2014

Faculty Author: Steven McGriff

Proposed Number: LINC 77B

Proposed Transferability: CSU

Proposed Title: Design Thinking & Tinkering

Proposed Catalog Description:

Student participants from community, business, and education practice design thinking, a process that innovators, designers, policy makers, and educators are using to develop innovative and collaborative solutions to real world challenges. Participants will use the design thinking process as they build low resolution prototype models using both physical materials and a 3D rendering program. Focus is on working individually and in teams, to hone skills of defining problems, collecting information, brainstorming and developing solutions. Emphasis is placed on following the design thinking process and learning the process of receiving and giving constructive feedback while creating iterative design solutions. Class activities include creating design concepts on paper and using 3D software to render files of the design explorations.

Proposed Discipline: Instructional Design and Technology

Proposed Need/Justification Statement:

This Workforce Education course provides specialized training for strategic partners in college vocational programs, high schools, economic development initiatives, ROP, and capacity development projects for stakeholders in grades 7-12. The primary target audience include educators and students from school districts within the FHDA district service area: Mountain View-Whisman, Palo Alto Unified, Sunnyvale Elementary, Mountain View-Los Altos Union HSD, Los Altos Elementary, Fremont Union HSD, and Cupertino Union. The secondary target audience includes schools and residents throughout San Mateo, Santa Clara, Santa Cruz, and Alameda counties.

To which Degree(s) or Certificate(s) would this course potentially be added?

Certificate of Achievement in Instructional Design and Technology

Comments & Other Relevant Information for Discussion:

This 1 unit course is the third of five LINC courses on design thinking: Course 1/ Design Thinking Overview (0.5 unit); 2/Design Thinking Process (1 unit); 4/Design Thinking in Education (1 unit); 5/Design Thinking Challenges (1 unit)

These courses will be situated in the proposed Instructional Design & Technology Certificate of Achievement, designed to prepare students for careers in education, instructional design, or training with the requisite knowledge and skills of instructional design to effectively analyze, design, develop, utilize, manage, and evaluate instructional and technological solutions to improve teaching, training, and learning in all education environments and corporate or organization training settings.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: May 6, 2014
Faculty Author: **Steven McGriff**

Proposed Number: LINC 77C
Proposed Transferability: CSU
Proposed Title: Design Thinking for Educators

Proposed Catalog Description:

Student-participants who are familiar with the design thinking process, originally created by the d.school at Stanford University, will develop innovative and collaborative solutions to real world challenges in education. Focus is on developing a project that would be easy to implement in a school environment and allow for immediate engagement in the design process by making and doing. Emphasis is given to 1) the empathy phase and facilitating student participants' reflections on the meaningful learning outcomes gained from the experience, 2) ideation of ideas in various media formats for review, and 3) and how to use those experience outcomes and constructive feedback to take another, deeper dive into the student-participant's chosen design challenge.

Advisory: Completion of LINC 77A and LINC77B or instructor consent. Experience with internet software tools, browsers, hyperlinks, online media resources, and basic skills using a computer.

Proposed Discipline: Instructional Design and Technology

Proposed Need/Justification Statement:

This Workforce Education course provides specialized training for strategic partners in college vocational programs, high schools, economic development initiatives, ROP, and capacity development projects for stakeholders in grades 7-12. The primary target audience include educators and students from school districts within the FHDA district service area: Mountain View-Whisman, Palo Alto Unified, Sunnyvale Elementary, Mountain View-Los Altos Union HSD, Los Altos Elementary, Fremont Union HSD, and Cupertino Union. The secondary target audience includes schools and residents throughout San Mateo, Santa Clara, Santa Cruz, and Alameda counties.

To which Degree(s) or Certificate(s) would this course potentially be added?
Certificate of Achievement in Instructional Design and Technology

Comments & Other Relevant Information for Discussion:

This 1 unit course is the fourth of five LINC courses on design thinking: Course 1/ Design Thinking Overview (0.5 unit); 2/Design Thinking Process (1 unit); 3/Design Thinking & Tinkering (1 unit); 5/Design Thinking Challenges (1 unit)

These courses will be situated in the proposed Instructional Design & Technology Certificate of Achievement, designed to prepare students for careers in education, instructional design, or training with the requisite knowledge and skills of instructional design to effectively analyze, design, develop, utilize, manage, and evaluate instructional and technological solutions to improve teaching, training, and learning in all education environments and corporate or organization training settings.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: May 6, 2014

Faculty Author: Steven McGriff

Proposed Number: LINC 77D

Proposed Transferability: CSU

Proposed Title: Design Thinking Challenges

Proposed Catalog Description:

Student-participants who are familiar with the design thinking process, originally created by the d.school at Stanford University, will work in groups to select a real world challenge project and create solutions. Focus is on working through the design thinking principles (empathize, define, ideate, prototype, test) to develop and present prototype solutions for challenges that emerge from a wide variety of areas, such as urban planning and design, engineering, manufacturing, global warming, rainforest deforestation, local community environment cleanup, building sustainable communities, eco-farming, art, architecture, or product design.

Advisory: Completion of LINC 77A and LINC77B or instructor consent. Experience with internet software tools, browsers, hyperlinks, online media resources, and basic skills using a computer.

Proposed Discipline: Instructional Design and Technology

Proposed Need/Justification Statement:

This Workforce Education course provides specialized training for strategic partners in college vocational programs, high schools, economic development initiatives, ROP, and capacity development projects for stakeholders in grades 7-12. The primary target audience include educators and students from school districts within the FHDA district service area: Mountain View-Whisman, Palo Alto Unified, Sunnyvale Elementary, Mountain View-Los Altos Union HSD, Los Altos Elementary, Fremont Union HSD, and Cupertino Union. The secondary target audience includes schools and residents throughout San Mateo, Santa Clara, Santa Cruz, and Alameda counties.

To which Degree(s) or Certificate(s) would this course potentially be added?

Certificate of Achievement in Instructional Design and Technology

Comments & Other Relevant Information for Discussion:

This 1 unit course is the fifth of five LINC courses on design thinking: Course 1/ Design Thinking Overview (0.5 unit); 2/Design Thinking Process (1 unit); 3/Design Thinking & Tinkering (1 unit); 4/Design Thinking for Educators (1 unit)

These courses will be situated in the proposed Instructional Design & Technology Certificate of Achievement, designed to prepare students for careers in education, instructional design, or training with the requisite knowledge and skills of instructional design to effectively analyze, design, develop, utilize, manage, and evaluate instructional and technological solutions to improve teaching, training, and learning in all education environments and corporate or organization training settings.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/30/14

Faculty Author: Kristin Tripp Caldwell

Proposed Number: MDIA 6A

Proposed Transferability: UC/CSU CSU area C1, UC Area 3A

Proposed Title: The Horror Film

Proposed Catalog Description:

Why do audiences enjoy the horror film? What cultural function does horror serve? This class will examine the appeal of the horror genre, while looking deeply into its aesthetics, mechanics, and conventions. Students will explore the history and development of the horror film genre from its roots in the silent film era to contemporary new media forms. Through analysis of the genre students will engage with ideas in critical media theory including spectatorship, the uncanny, and gender representation.

Proposed Discipline:

Film/TV, Interdisciplinary Studies, Film Studies, Music Technology

Proposed Need/Justification Statement:

The course is a restricted support course for the A.A. degree in Music Technology and Certificate of Achievement in Music Technology.

To which Degree(s) or Certificate(s) would this course potentially be added?

Music Technology

~~Media Studies (pending state approval)~~

Comments & Other Relevant Information for Discussion:

Recent Feedback on MDIA 6 (as a rotating genres course)

1. Based upon the way the outline (MDIA 6) is presented, the course is considered a variable topic course. UC acknowledged that if the faculty specified which content was covered, they could probably award transfer credit. The course description currently states: "Analysis of specific genres within film and new media and their evolution. Specific genres will be explored considering their historic, aesthetic, structural, and cultural dimensions as well as their mode of screening and distribution. Genres include film noir, horror, science fiction, science fiction, disaster, musical, war, action-adventure, musical, romance, comedy. The genre studied will change each quarter." If Kristin created a separate outline for each genre (e.g. MDIA 6A: Horror and Science Fiction; MDIA 6B: Disaster and War Films), we could submit them individually and guarantee the students transferability, as well as pursue IGETC and CSU GE approval.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/30/14

Faculty Author: Kristin Tripp Caldwell

Proposed Number: MDIA 8A

Proposed Transferability: UC/CSU ~~CSU area D3, UC Area 4~~ (cmln)

Proposed Title: Ethnicity in American Media

Proposed Catalog Description:

This course examines the complexities of racial representation in U.S. film and media, how media images and institutions influence and shape ethnic identity. The course will employ critical media theory to analyze the history of race representation in the media, and how media influences the creation of ethnic stereotypes. The contributions to the field of important filmmakers and media artists of color will be examined.

Proposed Discipline:

Film/TV, Interdisciplinary Studies, Film Studies, Music Technology

Proposed Need/Justification Statement:

The course is a restricted support course for the A.A. degree in Music Technology and Certificate of Achievement in Music Technology.

To which Degree(s) or Certificate(s) would this course potentially be added?

Music Technology

~~Media Studies (pending state approval)~~ (cmln)

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/30/14

Faculty Author: Kristin Tripp Caldwell

Proposed Number: MDIA 8B

Proposed Transferability: UC/CSU ~~CSU area C2, UC Area 4~~ (cmln)

Proposed Title: Gender & Sexuality in the Media

Proposed Catalog Description:

This course examines the role of film and media in shaping our understanding of gender identity. Students in this course will engage with feminist, queer, psychoanalytic theory through analysis of gender representation in film history. The course will examine significant gay and female directors, their works and contributions to media art.

Proposed Discipline:

Film/TV, Interdisciplinary Studies, Film Studies, Music Technology

Proposed Need/Justification Statement:

The course is a restricted support course for the A.A. degree in Music Technology and Certificate of Achievement in Music Technology.

To which Degree(s) or Certificate(s) would this course potentially be added?

Music Technology

~~Media Studies (pending state approval)~~ (cmln)

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/27/2014

Faculty Author: Bruce Tambling

Proposed Number: MUS 66G

Proposed Transferability: CSU

Proposed Title: Advanced Music Production With Ableton Live

Proposed Catalog Description: Recording, editing, mixing and mastering using Ableton Live. In depth training on Live's components, such as Operator, Sampler, Analog, and Electric. Compose grooves, bass lines, pads, and melodies which can be applied to any genre. Learn tools for live performance including on-the-fly beat creation. Study effects processing with compression, gate, chorus, flanging, and other delay lines to create original and dynamic textures. Use Ableton Live for producing complex compositions and live performances in any musical style.

Proposed Discipline: Music

Proposed Need/Justification Statement: This course is a restricted support course for the AA degree in Music Technology.

To which Degree(s) or Certificate(s) would this course potentially be added?
AA Music Technology

Comments & Other Relevant Information for Discussion:
Similar class titles are currently offered at many CSU locations.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/27/2014

Faculty Author: Bruce Tambling

Proposed Number: MUS 80B

Proposed Transferability: CSU

Proposed Title: Audio Journalism & Field Recording

Proposed Catalog Description: Introductory course to produce broadcast quality audio journalism and podcasts. Interviewing techniques, audio editing, mixing and mastering according to delivery specifications for NPR (National Public Radio) programs and iTunes. Study equipment required for field recording and synchronizing digital audio with broadcast quality video recorders. Multichannel audio recording techniques for live concerts, reality TV shows and ENG (electronic news gathering) event workflows. Using licensed music and sound effects to enhance audio post production. Develop technical and creative skills required to produce professional quality audio programs and work in the audio broadcast industry.

Proposed Discipline: Music, Radio Broadcasting (possibly Communication Studies)

Proposed Need/Justification Statement: This course is a restricted support course for the AA degree in Music Technology.

To which Degree(s) or Certificate(s) would this course potentially be added?

AA Music Technology

~~Radio Broadcasting~~

Comments & Other Relevant Information for Discussion:

Similar class titles are currently offered at CSU locations.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/29/14

Faculty Author: Janis Bergmann

Proposed Number: TTHR 25B

Proposed Transferability: UC/CSU

Proposed Title: Fashion & Costume Construction II

Proposed Catalog Description: Continuation of TTHR 25 with an exploration into more complex sewing techniques and machinery use. Further practice in the fabrication of clothing and costumes for the theatre, including pattern making, as well as fitting and draping with dress forms.

Proposed Discipline: Theatre Arts

Proposed Need/Justification Statement:

Restricted support course for the A.A. in Theatre Arts

To which Degree(s) or Certificate(s) would this course potentially be added?

A.A. in Theatre Arts

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: 5/29/14

Faculty Author: Janis Bergmann

Proposed Number: THTR 25C

Proposed Transferability: UC/CSU

Proposed Title: Fashion & Costume Construction III

Proposed Catalog Description: Continuation of THTR 25B with a practical focus on creating costumes from designs for a theatrical production. Further use and practice with complex sewing projects and machinery use, including a variety of alteration techniques to properly fit garments to the actor.

Proposed Discipline: Theatre Arts

Proposed Need/Justification Statement:

Restricted support course for the A.A. in Theatre Arts

To which Degree(s) or Certificate(s) would this course potentially be added?

A.A. in Theatre Arts

Comments & Other Relevant Information for Discussion:

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: May 22, 2014

Faculty Author: Milissa Carey

Proposed Number: THTR 47D

Proposed Transferability: UC/CSU

Proposed Title: Musical Theatre Production Workshop IV

Proposed Catalog Description:

This course is **designed** to develop technical skills in the areas of stage direction or choreography through the rehearsal and performance of a fully staged musical theatre production.

Proposed Discipline: Theatre Arts

Proposed Need/Justification Statement:

This course is a restricted support course for the AA degree in Theatre Arts and is UC/CSU transferable.

To which Degree(s) or Certificate(s) would this course potentially be added?

AA Degree in Theatre Arts

Comments & Other Relevant Information for Discussion:

This course will provide advanced training for students whose focus is stage direction and/or choreography in musical theatre. Using the current musical theatre production, students will receive practical training from casting to rehearsal to production of a fully stage musical theatre production.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

Foothill College
College Curriculum Committee
New Course Proposal

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Date Proposal Given to Division CCC Rep: May 28, 2014

Faculty Author: Milissa Carey

Proposed Number: THTR 48D

Proposed Transferability: UC/CSU

Proposed Title: Musical Theatre Repertoire For Singers II

Proposed Catalog Description:

This course is **designed** to develop further technical skills in singing and acting techniques applied to more complex and broader ranging repertoire , including staged duets, trios and full ensemble numbers.

Proposed Discipline: Theatre Arts

Proposed Need/Justification Statement:

This course is a restricted support course for the AA degree in Theatre Arts and is UC/CSU transferable.

To which Degree(s) or Certificate(s) would this course potentially be added?

AA Degree in Theatre Arts

Comments & Other Relevant Information for Discussion:

This course will provide training for students with prior experience in THTR48B/C targeting more complex material. This focus will include expansion of singing technique, challenging characters (emotional depth and physicality), building relationships in duets/trios and ensembles. All repertoire performed will be fully staged for studio performance.

Instruction Office:

Date presented at CCC:

Number assigned:

Date number assigned/notification:

FOOTHILL COLLEGE
Credit Program Narrative
Associate in Science in Air Conditioning and Refrigeration Technology

Item 1. Program Goals and Objectives

The goals and objectives of the Associate in Science in Air Conditioning and Refrigeration Technology degree align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Associate in Science in Air Conditioning and Refrigeration Technology degree aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical, and analytical thinking rubrics.

The Associate in Science in Air Conditioning and Refrigeration Technology degree serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this degree.

Foothill College is responding to local demand for Pipe Trades workers in Refrigeration, Heating, and Air Conditioning by establishing an Associate in Science in Air Conditioning and Refrigeration Technology degree in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Service Manager, Facilities Manager, Project Manager, Estimator, HVACR Instructor, HVACR Sustainable Technologies Technician, and Union Business Agent/ Business Manager.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove refrigeration, heating, air conditioning, and ventilation systems, including the appropriate electrical/electronic control systems.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, repair, extend, and/or alter refrigeration, heating, air conditioning, and ventilation systems, including electronic control systems.

Students complete the associate degree through enrollment in the Refrigeration and Air Conditioning apprenticeship program at the Pipe Trades Training Center and through completion of the general education requirements at Foothill College. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section § 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Associate in Science in Air Conditioning and Refrigeration Technology degree.

Item 2. Catalog Description

The Associate in Science in Air Conditioning and Refrigeration Technology degree program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom

instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry and work to insure indoor air quality by servicing and repairing all types of refrigeration equipment in all sizes of buildings, complex air conditioning, heating and refrigeration units used in hospitals, skyscrapers, manufacturing facilities and research development laboratories. Graduates will be employable as: Service Manager, Facilities Manager, Project Manager, Estimator, HVACR Instructor, HVACR Sustainable Technologies Technician, and/or a Union Business Agent/ Business Manager in almost any industry. Labor Market analysis indicates increased employment opportunities in the pipe trades through 2020. Students earning an associate degree increase their marketability and employment opportunities. Enrollment in apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance and repair of different types of pipe systems, electronic control systems, refrigeration and air conditioning systems, effective and safe tool use, material applications, electrical competency, related mathematics and science and storage. The Associate in Science in Air Condition and Refrigeration Technology degree builds on the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service by adding requirements for general education courses and electives.

Students are admitted to the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (45.5 Units)	APPT 151	RF 101 Basic Refrigeration Service Skills	4.5			Yr 1, Fall
	APPT 152	RF 102 Basic Electricity & Refrigeration	4.5			Yr 1, Winter
	APPT 153	RF 201 Mechanical Systems	4.5			Yr 2, Fall
	APPT 154	RF 202 Electric Controls Fundamentals	4.5			Yr 2, Winter
	APPT 155	RF 301 Advanced Electric Controls	4.5			Yr 3, Fall
	APPT 156	RF 302 HVAC Pneumatic & Electronic Control Systems	4.5			Yr 3, Winter
	APPT 157	RF 401 Industrial Refrigeration & Air-Conditioning Service	4.5			Yr 4, Fall
	APPT 158	RF 402 Advanced Refrigeration & Chillers	4.5			Yr 4, Winter
	APPT 159	RF 501 Start, Test, & Balance: HVAC Systems	4.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

Required Major Total

45.5 units

Completion of Foothill GE pattern

35 units

Transferable electives (as needed to reach 90 units)

9.5 units

TOTAL UNITS

90 units

Proposed Sequence: (to include general education courses)

Year 1, Fall = 15 units

Year 1, Winter = 15 units

Year 2, Fall = 15 units
 Year 2, Winter = 15 units
 Year 3, Fall = 6.5 units
 Year 3, Winter = 4.5 units
 Year 4, Fall = 4.5 units
 Year 4, Winter = 4.5 units
 Year 5, Fall = 4.5 units
 Year 5, Winter = 5.0 units
TOTAL UNITS: 90 units

Item 4. Master Planning

The Associate in Science in Air Conditioning and Refrigeration Technology degree aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Associate in Science in Air Conditioning and Refrigeration Technology degree is a new degree and does not duplicate an already-existing program within the Foothill-De Anza Community College District or the surrounding colleges.

The only competition to the Associate in Science in Air Conditioning and Refrigeration Technology degree at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently-graduated journeymen are taking on-line courses at Washtenaw Community College and at National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn an Associate in Applied Science degree in HVACR Sustainable Technologies or Industrial Journeyman. Offering an associate degree would well serve the college's primary stakeholders: the students, community partners and the community at-large.

Local references in support of the associate degree include all Advisory Committee representatives from the Pipe Trades Training Center (Appendix B) who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 151	RF 101 Basic Refrigeration Service Skills	2	24	2	21
APPT 152	RF 102 Basic Electricity & Refrigeration	2	23	2	22
APPT 153	RF 201 Mechanical Systems	1	13	2	21
APPT 154	RF 202 Electric Controls Fundamentals	1	15	2	22
APPT 155	RF 301 Advanced Electric Controls	1	6	1	14
APPT 156	RF 302 HVAC Pneumatic & Electronic Control Systems	1	6	1	14
APPT 157	RF 401 Industrial Refrigeration & Air-Conditioning Service	2	19	1	6
APPT 158	RF 402 Advanced Refrigeration & Chillers	2	19	1	7
APPT 159	RF 501 Start, Test, & Balance: HVAC Systems	2	24	2	19
APPT 129	Special Topics	3	25	2	20
APPT 130	Review & Turnout	2	25	2	21

Item 6. Place of Program in Curriculum/Similar Programs

The Associate in Science in Air Conditioning and Refrigeration Technology degree does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the college. The associate degree creates pathways for students from pre-apprenticeship and apprenticeship through an associate degree and potential transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service to the Associate in Science in Air Conditioning and Refrigeration Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Associate in Science in Plumbing Technology

Item 1. Program Goals and Objectives

The goals and objectives of the Associate in Science in Plumbing Technology degree align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Associate in Science in Plumbing Technology degree aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical, and analytical thinking rubrics.

The Associate in Science in Plumbing Technology degree serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this degree.

Foothill College is responding to local demand for Pipe Trades workers in Plumbing by establishing an Associate in Science in Plumbing Technology degree in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates may be employable as: Foreman, General Foreman, Superintendent, Project Manager, Estimator, Detailer, Building Trades Inspector, Building Trades Instructor, and Union Business Agent/ Business Manager.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove plumbing systems such as drain waste and ventilation systems, systems for various industrial fluids, public or private water systems and gas piping systems.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter plumbing systems including drain waste and ventilation systems, systems for various industrial fluids, public or private water systems and gas piping systems.

Students complete the associate degree through enrollment in the plumbing apprenticeship program at the Pipe Trades Training Center and through completion of the general education requirements at Foothill College. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Associate in Science in Plumbing Technology degree.

Item 2. Catalog Description

The Associate in Science in Plumbing Technology degree program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom instruction

and paid work experience, students are recognized as journeypersons within the Pipe Trades industry, working to protect the health and safety of the community by piping pure water to commercial and industrial buildings for drinking, cooking, washing, cleaning, manufacturing or personal use, and removing waste water after it has served its purpose. Graduates will be prepared to work as a Foreman, General Foreman, Superintendent, Project Manager, Estimator, Detailer, Building Trades Inspector, Building Trades Instructor, and Union Business Agent/ Business Manager in the energy, biopharmaceutical, healthcare, aerospace, construction, housing, water treatment, and food and beverage processing industries. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning an associate degree increase their marketability and employment opportunities. Enrollment in apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, related mathematics & science and storage. Students will learn to read blueprints, apply layout and install, as well as estimate and repair both supply and waste water systems. The Associate in Science in Plumbing Technology degree builds on the Certificate of Achievement in Plumbing by adding requirements for general education courses and electives.

Students are admitted to the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (47.5 Units)	APPT 131	P-101 Basic Plumbing Skills	4.5			Yr 1, Fall
	APPT 132	P-102 Applied & Related Theory	4.5			Yr 1, Winter
	APPT 133	P-201 Beginning Drawing & Design	4.5			Yr 2, Fall
	APPT 134A	P 202A Rigging & Layout	2.5			Yr 2, Winter
	APPT 134B	Industrial Safety	2.5			Yr 2, Winter
	APPT 135A	P-301A Plumbing Fixtures	2.5			Yr 3, Fall
	APPT 135B	P-301B Plumbing Codes	2.5			Yr 3, Fall
	APPT 136	P-302 Advanced Trade Math for Plumbers	4.5			Yr 3, Winter
	APPT 137A	P-401A Water Systems	2.5			Yr 4, Fall
	APPT 137B	P-401B Applied Welding	2.5			Yr 4, Fall
	APPT 138	P-402 Advanced Drawing & Blueprint Reading	4.5			Yr 4, Winter
	APPT 139A	Industrial Installation	2.5			Yr 5, Fall
	APPT 139B	Medical Gas Installation	2.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

Required Major Total

Completion of Foothill GE pattern

47.5 units

35 units

Transferable electives (as needed to reach 90 units)

7.5 units

TOTAL UNITS

90 units

Proposed Sequence: (to include general education courses)

Year 1, Fall = 15 units

Year 1, Winter = 15 units
Year 2, Fall = 15 units
Year 2, Winter = 16 units
Year 3, Fall = 5 units
Year 3, Winter = 4.5 units
Year 4, Fall = 5 units
Year 4, Winter = 4.5 units
Year 5, Fall = 5 units
Year 5, Winter = 5 units
TOTAL UNITS: 90 units

Item 4. Master Planning

The Associate in Science in Plumbing Technology degree aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Associate in Science in Plumbing Technology degree is a new degree and does not duplicate an already-existing program within the Foothill-De Anza Community College District or the surrounding colleges.

The only competition to the Associate of Science in Plumbing Technology degree program at Foothill College occurs from two out-of-state colleges that offer on-line degrees. Pipe Trades Training Center apprentices and recently-graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn an Associate in Applied Science degree in Industrial Journeyman. Offering an associate degree would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the Associate in Science in Plumbing Technology degree include all Advisory Committee representatives from the Pipe Trades Training Center (Appendix B) who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 131	P-101 Basic Plumbing Skills	3	36	2	30
APPT 132	P-102 Applied & Related Theory	1	6	3	33
APPT 133	P-201 Beginning Drawing & Design	1	6	2	24
APPT 134A	P-202A Rigging & Layout	1	13	1	12
APPT 134B	Industrial Safety	1	13	1	12
APPT 135A	P-301A Plumbing Fixtures	2	20	1	6
APPT 135B	P-301B Plumbing Codes	2	26	1	6
APPT 136	P-302 Advanced Trade Math for Plumbers	1	6	1	13
APPT 137A	P-401A Water Systems	2	22	1	8
APPT 137B	P-401B Applied Welding	2	21	1	8
APPT 138	P-402 Advanced Drawing & Blueprint Reading	2	25	2	18
APPT 139A	Industrial Installation	2	25	1	18
APPT 139B	Medical Gas Installation	1	20	1	12
APPT 129	Special Projects	3	25	2	21
APPT 130	Review & Turnout	2	25	2	18

Item 6. Place of Program in Curriculum/Similar Programs

The Associate in Science in Plumbing Technology degree does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the College. The associate degree creates pathways for students from pre-apprenticeship and apprenticeship through an associate's degree and potential transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Plumbing to the Associate in Science in Plumbing Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Associate in Science in Steamfitting and Pipefitting Technology

Item 1. Program Goals and Objectives

The goals and objectives of the Associate in Science in Steamfitting and Pipefitting Technology degree align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Associate in Science in Steamfitting and Pipefitting Technology degree aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical and analytical thinking rubrics.

The Associate in Science in Steamfitting and Pipefitting Technology degree serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this degree.

Foothill College is responding to local demand for Pipe Trades workers in Steamfitting and Pipefitting by establishing an Associate in Science in Steamfitting and Pipefitting Technology degree in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Foreman, General Foreman, Superintendent, Project Manager, Estimator, Detailer, Building Trades Inspector, Building Trades Instructor, and Union Business Agent/ Business Manager.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove piping and equipment for complex heating and air conditioning applications and special industrial piping systems, such as those used in semiconductor, biotechnology, and power generation facilities.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter piping and equipment for heating and air conditioning, and for special industrial piping systems, such as those used in semiconductor, biotechnology, and power generation facilities.

Students complete the associate degree through enrollment in the Steamfitting/Pipefitting apprenticeship program at the Pipe Trades Training Center and through completion of the general education requirements at Foothill College. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment, and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section § 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Associate in Science degree in Steamfitting and Pipefitting Technology.

Item 2. Catalog Description

The Associate in Science in Steamfitting and Pipefitting Technology degree program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is

five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry and work to protect our environment by properly installing and maintaining piping and equipment for complex heating and air conditioning and special industrial piping systems. Graduates will be employable as: Foreman, General Foreman, Superintendent, Project Manager, Estimator, Detailer, Building Trades Inspector, Building Trades Instructor, and/or a Union Business Agent/ Business Manager in the semiconductor, biotechnology, power generation, healthcare, education, water treatment, and food and beverage processing industries. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning an associate degree will increase their marketability and employment opportunities. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, related mathematics & science and storage. The Associate in Science in Steamfitting and Pipefitting Technology degree builds on the Certificate of Achievement in Steamfitting/Pipefitting by adding requirements for general education courses and electives.

Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (47 Units)	APPT 141	SF 101 Basic Steamfitting Skills	4.5			Yr 1, Fall
	APPT 142	SF 102 Related Math, Drawing & Rigging	4.5			Yr 1, Winter
	APPT 143	SF 201 Steamfitter Cutting & Welding	4.5			Yr 2, Fall
	APPT 144A	SF 202A Science; Electricity & Air Conditioning	2.5			Yr 2, Winter
	APPT 134B	Industrial Safety	2.5			Yr 2, Winter
	APPT 145	SF 301 Advanced Trade Math for Steamfitters	4.5			Yr 3, Fall
	APPT 146	SF 302 Steam Technology	4.5			Yr 3, Winter
	APPT 147A	SF 401A Hydronic Systems	2.5			Yr 4, Fall
	APPT 147B	SF 401B Industrial Rigging	2.5			Yr 4, Fall
	APPT 148	SF 402 Advanced Drawing & Blueprint Reading	4.5			Yr 4, Winter
	APPT 139A	Industrial Installations	2.5			Yr 5, Fall
	APPT 139B	Medical Gas Installations	2.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

Required Major Total

Completion of Foothill GE pattern

47 units

35 units

Transferable electives (as needed to reach 90 units)

08 units

TOTAL UNITS

90 units

Proposed Sequence: (to include general education courses)

Year 1, Fall = 15 units
Year 1, Winter = 16 units
Year 2, Fall = 15 units
Year 2, Winter = 15.5 units
Year 3, Fall = 4.5 units
Year 3, Winter = 4.5 units
Year 4, Fall = 5 units
Year 4, Winter = 4.5 units
Year 5, Fall = 5 units
Year 5, Winter = 5 units
TOTAL UNITS: 90 units

Item 4. Master Planning

The Associate in Science in Steamfitting and Pipefitting Technology degree aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Associate in Science in Steamfitting and Pipefitting Technology degree is a new degree and does not duplicate an already-existing program within the Foothill-De Anza Community College District or the surrounding colleges.

The only competition to the Associate in Science in Steamfitting and Pipefitting Technology degree at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn an Associate's Degree in Steamfitting. Offering an associate degree would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the Associate in Science in Steamfitting and Pipefitting Technology degree include all Advisory Committee representatives from the Pipe Trades Training Center who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 141	SF101 Basic Steamfitting Skills	3	36	2	29
APPT 142	SF 102 Related Math, Drawing & Rigging	1	11	2	21
APPT 143	SF 201 Cutting & Welding	2	20	1	13
APPT 144A	SF 202A Science, Electricity & Air Conditioning	1	14	1	15
APPT 134B	Industrial Safety	1	13	1	12
APPT 145	SF 301 Advanced Trade Math for Steamfitters	1	6	1	14
APPT 146	SF 302 Steam Technology	1	7	1	13
APPT 147A	SF 401A Hydronic Systems	1	12	1	8
APPT 147B	SF 401B Industrial Rigging	1	12	1	9
APPT 148	SF 402 Advanced Drawing & Blueprint Reading	1	12	1	8
APPT 139A	Industrial Installations	2	24	1	12
APPT 139B	Medical Gas Installations	2	27	1	11
APPT 129	Special Topics	2	25	2	23
APPT 130	Review & Turnout	2	24	1	16

Item 6. Place of Program in Curriculum/Similar Programs

The Associate in Science in Steamfitting and Pipefitting Technology degree does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the College. The associate degree creates pathways for students from pre-apprenticeship and apprenticeship through an associate's degree and potential transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Steamfitting/Pipefitting to the Associate in Science in Steamfitting and Pipefitting Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Certificate of Achievement in Plumbing

Item 1. Program Goals and Objectives

The goals and objectives of the Certificate of Achievement in Plumbing align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Certificate of Achievement in Plumbing aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical, and analytical thinking rubrics.

The Certificate of Achievement in Plumbing at Foothill College serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this certificate.

Foothill College is responding to local demand for Pipe Trades workers in Plumbing by establishing a Certificate of Achievement in Plumbing in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Journeyman Commercial Plumber/Industrial Plumber, Foreman, and General Foreman.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove plumbing systems such as drain waste and ventilation systems, systems for various industrial fluids, public or private water systems and gas piping systems.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter plumbing systems including drain waste and ventilation systems, systems for various industrial fluids, public or private water systems and gas piping systems.

Students complete the certificate of achievement through enrollment in the Plumbing apprenticeship program at the Pipe Trades Training Center. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Certificate of Achievement in Plumbing.

Item 2. Catalog Description

The Certificate of Achievement in Plumbing program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry, working to protect the health and safety of the community by piping pure water to commercial and industrial buildings for drinking, cooking, washing, cleaning, manufacturing or personal use, and removing waste water after it has

served its purpose. Graduates of the Certificate of Achievement in Plumbing program will be employable as: Journeyman Commercial Plumber/Industrial Plumber, Foreman, and General Foreman in the energy, biopharmaceutical, healthcare, aerospace, construction, housing, water treatment, and food and beverage processing industries. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning a certificate in Plumbing will increase their marketability and employment opportunities. Admission to apprenticeship classes is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, related mathematics & science and storage. The student will learn to read blueprints, apply layout and install, as well as estimate and repair both supply and waste water systems. The courses required for the Certificate of Achievement in Plumbing also meet many of the requirements for the Associate in Science degree in Plumbing Technology.

Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (47.5 Units)	APPT 131	P-101 Basic Plumbing Skills	4.5			Yr 1, Fall
	APPT 132	P-102 Applied & Related Theory	4.5			Yr 1, Winter
	APPT 133	P-201 Beginning Drawing & Design	4.5			Yr 2, Fall
	APPT 134A	P-202A Rigging & Layout	2.5			Yr 2, Winter
	APPT 134B	Industrial Safety	2.5			Yr 2, Winter
	APPT 135A	P-301A Plumbing Fixtures	2.5			Yr 3, Fall
	APPT 135B	P-301B Plumbing Codes	2.5			Yr 3, Fall
	APPT 136	P-302 Advanced Trade Math for Plumbers	4.5			Yr 3, Winter
	APPT 137A	P-401A Water Systems	2.5			Yr 4, Fall
	APPT 137B	P-401B Applied Welding	2.5			Yr 4, Fall
	APPT 138	P-402 Advanced Drawing & Blueprint Reading	4.5			Yr 4, Winter
	APPT 139A	Industrial Installation	2.5			Yr 5, Fall
	APPT 139B	Medical Gas Installation	2.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

TOTAL UNITS

47.5 units

Proposed Sequence:

Year 1, Fall = 4.5 units

Year 1, Winter = 4.5 units

Year 2, Fall = 4.5 units

Year 2, Winter = 5 units

Year 3, Fall = 5 units

Year 3, Winter = 4.5 units

Year 4, Fall = 5 units

Year 4, Winter = 4.5 units

Year 5, Fall = 5 units

Year 5, Winter = 5 units

TOTAL UNITS: 47.5 units

Item 4. Master Planning

The Certificate of Achievement in Plumbing aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Certificate of Achievement in Plumbing is a new program and, therefore, does not duplicate an already-existing program within the Foothill-De Anza Community College District or the surrounding colleges.

The only apparent competition to the Certificate of Achievement in Plumbing program at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn a Certificate of Achievement in Apprenticeship Completion or Construction Management. Offering a certificate of achievement would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the certificate of achievement include all Advisory Committee representatives from the Pipe Trades Training Center (Appendix B) who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 131	P-101 Basic Plumbing Skills	3	36	2	30
APPT 132	P-102 Applied & Related Theory	1	6	3	33
APPT 133	P-201 Beginning Drawing & Design	1	6	2	24
APPT 134A	P-202A Rigging & Layout	1	13	1	12
APPT 134B	Industrial Safety	1	13	1	12
APPT 135A	P-301A Plumbing Fixtures	2	20	1	6
APPT 135B	P-301B Plumbing Codes	2	26	1	6
APPT 136	P-302 Advanced Trade Math for Plumbers	1	6	1	13
APPT 137A	P-401A Water Systems	2	22	1	8
APPT 137B	P-401B Applied Welding	2	21	1	8
APPT 138	P-402 Advanced Drawing & Blueprint Reading	2	25	2	18
APPT 139A	Industrial Installation	2	25	1	18
APPT 139B	Medical Gas Installation	1	20	1	12
APPT 129	Special Projects	3	25	2	21
APPT 130	Review & Turnout	2	25	2	18

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Plumbing does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the college. The certificate of achievement creates pathways for students from pre-apprenticeship and apprenticeship through the opportunity to attain an associate's degree and potential

transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Plumbing to the Associate in Science in Plumbing Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service

Item 1. Program Goals and Objectives

The goals and objectives of the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical, and analytical thinking rubrics.

The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this certificate.

Foothill College is responding to local demand for Pipe Trades workers in Refrigeration, Heating, and Air Conditioning by establishing an Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, CA. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Commercial/Industrial Journeyman Refrigeration and HVAC Mechanic, Foreman, General Foreman, and Service Manager.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove refrigeration, heating, air conditioning, and ventilation systems, including the appropriate electrical/electronic control systems.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, repair, extend, and/or alter refrigeration, heating, air conditioning, and ventilation systems, including electronic control systems.

Students complete the certificate of achievement through enrollment in the Refrigeration and Air Conditioning Mechanical Service apprenticeship program at the Pipe Trades Training Center. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service.

Item 2. Catalog Description

The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of

classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry and work to insure indoor air quality by servicing and repairing all types of refrigeration equipment in all sizes of buildings, complex air conditioning, heating, and refrigeration units used in hospitals, skyscrapers, manufacturing facilities, and research development laboratories. Graduates will be employable as: Commercial/Industrial Journeyman Refrigeration and HVAC Mechanic, Foreman, General Foreman, and Service Manager in almost any industry. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning a certificate of achievement will increase their marketability and employment opportunities. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, electrical competency, related mathematics & science and storage. The courses required for the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service also meet many of the requirements for the Associate in Science in Air Conditioning and Refrigeration Technology degree.

Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (45.5 Units)	APPT 151	RF 101 Basic Refrigeration Service Skills	4.5			Yr 1, Fall
	APPT 152	RF 102 Basic Electricity & Refrigeration	4.5			Yr 1, Winter
	APPT 153	RF 201 Mechanical Systems	4.5			Yr 2, Fall
	APPT 154	RF 202 Electric Controls Fundamentals	4.5			Yr 2, Winter
	APPT 155	RF 301 Advanced Electric Controls	4.5			Yr 3, Fall
	APPT 156	RF 302 HVAC Pneumatic & Electronic Control Systems	4.5			Yr 3, Winter
	APPT 157	RF 401 Industrial Refrigeration & Air-Conditioning Service	4.5			Yr 4, Fall
	APPT 158	RF 402 Advanced Refrigeration & Chillers	4.5			Yr 4, Winter
	APPT 159	RF 501 Start, Test, & Balance: HVAC Systems	4.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

TOTAL UNITS

45.5 units

Proposed Sequence:

Year 1, Fall = 4.5 units

Year 1, Winter = 4.5 units

Year 2, Fall = 4.5 units

Year 2, Winter = 4.5 units

Year 3, Fall = 4.5 units

Year 3, Winter = 4.5 units
Year 4, Fall = 4.5 units
Year 4, Winter = 4.5 units
Year 5, Fall = 4.5 units
Year 5, Winter = 5 units

TOTAL UNITS: 45.5 units

Item 4. Master Planning

The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service is a new program and does not duplicate an already-existing program within the Foothill-De Anza district or the surrounding colleges.

The only competition to the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service program at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn a Certificate of Achievement in Apprenticeship Completion or Construction Management. Offering a certificate of achievement would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service include all Advisory Committee representatives from the Pipe Trades Training Center (Appendix B) who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 151	RF 101 Basic Refrigeration Service Skills	2	24	2	21
APPT 152	RF 102 Basic Electricity & Refrigeration	2	23	2	22
APPT 153	RF 201 Mechanical Systems	1	13	2	21
APPT 154	RF 202 Electric Controls Fundamentals	1	15	2	22
APPT 155	RF 301 Advanced Electric Controls	1	6	1	14
APPT 156	RF 302 HVAC Pneumatic & Electronic Control Systems	1	6	1	14
APPT 157	RF 401 Industrial Refrigeration & Air-Conditioning Service	2	19	1	6
APPT 158	RF 402 Advanced Refrigeration & Chillers	2	19	1	7
APPT 159	RF 501 Start, Test, & Balance: HVAC Systems	2	24	2	19
APPT 129	Special Topics	3	25	2	20
APPT 130	Review & Turnout	2	25	2	21

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the College. The certificate of achievement creates pathways for students from pre-apprenticeship and apprenticeship through the opportunity to attain an associate's degree and potential transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Refrigeration and Air Conditioning Mechanical Service to the Associate in Science in Air Conditioning and Refrigeration Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Certificate of Achievement in Residential Plumbing

Item 1. Program Goals and Objectives

The goals and objectives of the Certificate of Achievement in Residential Plumbing align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Certificate of Achievement in Residential Plumbing aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical and analytical thinking rubrics.

The Certificate of Achievement in Residential Plumbing at Foothill College serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this certificate.

Foothill College is responding to local demand for Pipe Trades workers in Plumbing by establishing a Certificate of Achievement in Residential Plumbing in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Journeyman Residential Plumber, Foreman, and General Foreman.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove plumbing systems such as drain waste and ventilation systems, domestic water systems and gas piping systems for single and multiple family dwellings, hotels, and motels.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter plumbing systems including drain waste and ventilation systems, domestic water systems, and gas piping systems for single and multiple family dwellings, hotels, and motels.

Students complete the certificate of achievement through enrollment in the Residential Plumbing apprenticeship program at the Pipe Trades Training Center. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the student's test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section § 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Certificate of Achievement in Residential Plumbing.

Item 2. Catalog Description

The Certificate of Achievement in Residential Plumbing program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 6,900 hours of on-the-job training. After 4 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry, working to

install and maintain waste lines, hot and cold water piping, and gas systems, including piping, accessories, fixtures and appliances to single and multiple family dwellings as well as hotels and motels. Graduates of the Residential Plumbing Certificate of Achievement program will be employable as: Journeyman Residential Plumber, Foreman, and General Foreman, working in residential construction, and repair of existing structures. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning a certificate in Residential Plumbing will increase their marketability and employment opportunities, although residential plumbers are paid about \$27 less per hour than journeymen qualified for industrial plumbing. The starting salary for a residential plumbing journeyman is \$30.50. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of residential and hotel/motel pipe systems, effective and safe tool use, material applications, related mathematics & science and storage. The student will learn to read blueprints, apply layout and install, as well as estimate and repair both supply and waste water systems. The courses required for the Certificate of Achievement in Residential Plumbing also meet a few of the requirements for the Associate in Science degree in Plumbing Technology.

Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (24 Units)	APPT 121	Introduction to Residential Plumbing, Safety & Tools	2.5			Yr 1, Fall
	APPT 122	Residential Drainage Systems	2.5			Yr 1, Winter
	APPT 123	Residential Gas & Water Installations	2.5			Yr 2, Fall
	APPT 124	Mathematics for Residential Plumbing	2.5			Yr 2, Winter
	APPT 125	Residential Blueprint Reading	4.5			Yr 3, Fall
	APPT 126	Residential Piping Layout & Installation; Residential Fixtures	4.5			Yr 3, Winter
	APPT 127	Residential Plumbing Code	2.5			Yr 4, Fall
	APPT 128	Residential Gas Installations; Service Work	2.5			Yr 4, Fall

TOTAL UNITS

24 units

Proposed Sequence:

Year 1, Fall = 2 units

Year 1, Winter = 2 units

Year 2, Fall = 2 units

Year 2, Winter = 2 units

Year 3, Fall = 2 units

Year 3, Winter = 2 units

Year 4, Fall = 2 units

Year 4, Winter = 2 units

TOTAL UNITS: 24 units

Item 4. Master Planning

The Certificate of Achievement in Residential Plumbing aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Certificate of Achievement in Residential Plumbing is a new program and does not duplicate an already-existing program within the Foothill-De Anza Community College District or the surrounding colleges.

The only competition to the Certificate of Achievement in Residential Plumbing program at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn a Certificate of Achievement in Apprenticeship Completion or Construction Management. Offering a certificate of achievement would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the Certificate of Achievement in Residential Plumbing include all Advisory Committee representatives from the Pipe Trades Training Center (Appendix B) who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 121	Introduction to Residential Plumbing, Safety & Tools	2	7	1	13
APPT 122	Residential Drainage Systems	2	7	1	3
APPT 123	Residential Gas & Water Installations	2	10	1	13
APPT 124	Mathematics for Residential Plumbing	2	7	1	13
APPT 125	Residential Blueprint Reading	2	7	1	4
APPT 126	Residential Piping Layout & Installation; Residential Fixtures	2	10	2	12
APPT 127	Residential Plumbing Code	2	4	3	17
APPT 128	Residential Gas Installations; Service Work	1	4	1	13

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Residential Plumbing does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the College. The certificate of achievement creates pathways for students from pre-apprenticeship and apprenticeship through the opportunity to attain an associate's degree and potential transfer to a four-year institution. Students wishing to complete the Associate in Science in Plumbing Technology degree must first complete the courses and training hours required for the Certificate of Achievement in Plumbing.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

FOOTHILL COLLEGE
Credit Program Narrative
Certificate of Achievement in Steamfitting/Pipefitting

Item 1. Program Goals and Objectives

The goals and objectives of the Certificate of Achievement in Steamfitting/Pipefitting align with the primary mission of California community colleges, as established in Ed. Code § 66010.4, which mandates that community colleges provide vocational instruction to students and to advance California's economic growth and global competitiveness through education and training that contribute to workforce development. The Certificate of Achievement in Steamfitting/Pipefitting aligns with Foothill College's Institutional Outcomes and directly supports the computation, creative, critical, and analytical thinking rubrics.

The Certificate of Achievement in Steamfitting/Pipefitting at Foothill College serves to align apprenticeship programs with college and university academic tracks as directed by the federal and state government. Foothill College, functioning as the Local Education Agency for the Division of Apprenticeship Standards for the state of California, is collaborating with the Lloyd E. Williams Pipe Trades Training Center to offer this certificate.

Foothill College is responding to local demand for Pipe Trades workers in Steamfitting and Pipefitting by establishing a Certificate of Achievement in Steamfitting/Pipefitting in partnership with the Lloyd E. Williams Pipe Trades Training Center, the Joint Apprenticeship Training Center located in San Jose, California. Graduates are recognized as journeypersons within the Pipe Trades industry and will increase their marketability and employment opportunities. Graduates will be employable as: Journeyman Commercial/Industrial Steamfitter and Pipefitter, Commercial/Industrial Welder, Foreman, and General Foreman.

Program Learning Outcomes:

- In compliance with applicable standards and codes, students will demonstrate ability to install and remove piping and equipment for complex heating and air conditioning applications and special industrial piping systems, such as those used in semiconductor, biotechnology, and power generation facilities.
- In compliance with applicable standards and codes, students will demonstrate ability to maintain, extend, and/or alter piping and equipment for heating and air conditioning, and for special industrial piping systems, such as those used in semiconductor, biotechnology, and power generation facilities.

Students complete the certificate of achievement through enrollment in the Steamfitting/Pipefitting apprenticeship program at the Pipe Trades Training Center. To apply to the Pipe Trades Training Center apprenticeship program, potential students must be at least 18 years of age, be able to perform the work of the trade, present verification of high school completion, either through a high school diploma or GED or High School Proficiency certificate, and demonstrate the ability to read, write, and speak English. The selection, employment and training of apprentices by the Pipe Trades Training Center is without discrimination according to race, color, national or ethnic origin, age, gender, religion, sexual orientation or marital status. Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards and is authorized by the California Labor Code, Section § 3074.3.

Aside from Foothill College's ordinary enrollment fees, there are no additional costs to the student to complete the Certificate of Achievement in Steamfitting/Pipefitting.

Item 2. Catalog Description

The Certificate of Achievement in Steamfitting/Pipefitting program is conducted in partnership with the Pipe Trades Training Center apprenticeship program. The apprenticeship program is five years in duration, requiring a minimum of 9,000 hours of on-the-job training. After 5 years of classroom instruction and paid work experience, students are recognized as journeypersons within the Pipe Trades industry and work to protect our environment by properly installing and maintaining piping and equipment for complex heating and air conditioning and special industrial piping systems. Graduates will be employable as: Journeyman Commercial/Industrial Steamfitter and Pipefitter, Commercial/Industrial Welder, Foreman, and General Foreman in industries such as the semiconductor, biotechnology, energy, healthcare, education, housing, water treatment, and food and beverage processing industries. Labor Market Analysis indicates increased employment opportunities in the Pipe Trades through 2020. Students earning a certificate will increase their marketability and employment opportunities. Admission to apprenticeship courses is limited to apprentices registered with the California Division of Apprenticeships Standards, according to the California Labor Code, Section § 3074.3.

The apprenticeship program, which includes coursework, lab work and on-the-job training, involves learning about the assessment, installation, maintenance, and repair of different types of pipe systems, effective and safe tool use, material applications, related mathematics & science and storage. The student will be able to assess and install high-pressure pipe systems in order to move liquids or gases under high pressure. The courses required for the Certificate of Achievement in Steamfitting/Pipefitting also meet many of the requirements for the Associate in Science in Steamfitting and Pipefitting Technology degree.

Students are admitted into the Pipe Trades Training Center apprenticeship program based on obtaining a passing (75%) score on the Pipe Trades Entrance Exam, which measures the student's ability in math and mechanical reasoning. Students who pass the entrance exam are selected from an applicant waiting list, the order of which is established by the date the entrance exam was taken and the test score.

Item 3. Program Requirements

Requirements	Crse #	Name	Units	CSU-GE	IGETC	Sequence
Core Courses (47 Units)	APPT 141	SF 101 Basic Steamfitting Skills	4.5			Yr 1, Fall
	APPT 142	SF 102 Related Math, Drawing & Rigging	4.5			Yr 1, Winter
	APPT 143	SF 201 Steamfitter Cutting & Welding	4.5			Yr 2, Fall
	APPT 144A	SF 202A Science; Electricity & Air Conditioning	2.5			Yr 2, Winter
	APPT 134B	Industrial Safety	2.5			Yr 2, Winter
	APPT 145	SF 301 Advanced Trade Math for Steamfitters	4.5			Yr 3, Fall
	APPT 146	SF 302 Steam Technology	4.5			Yr 3, Winter
	APPT 147A	SF 401A Hydronic Systems	2.5			Yr 4, Fall
	APPT 147B	SF 401B Industrial Rigging	2.5			Yr 4, Fall
	APPT 148	SF 402 Advanced Drawing & Blueprint Reading	4.5			Yr 4, Winter
	APPT 139A	Industrial Installations	2.5			Yr 5, Fall
	APPT 139B	Medical Gas Installations	2.5			Yr 5, Fall
	APPT 129	Special Topics	2.5			Yr 5, Winter
	APPT 130	Review & Turnout	2.5			Yr 5, Winter

TOTAL UNITS

47 units

Proposed Sequence:

Year 1, Fall = 4.5 units

Year 1, Winter = 4.5 units

Year 2, Fall = 4.5 units

Year 2, Winter = 5 units

Year 3, Fall = 4.5 units

Year 3, Winter = 4.5 units

Year 4, Fall = 5 units

Year 4, Winter = 4.5 units

Year 5, Fall = 5 units

Year 5, Winter = 5 units

TOTAL UNITS: 47 units

Item 4. Master Planning

The Certificate of Achievement in Steamfitting/Pipefitting aligns with the planned goals of the college and the District because the program serves the regional area in support of workforce development and economic growth. The Certificate of Achievement in Steamfitting/Pipefitting is a new program and does not duplicate an already-existing program within the Foothill-De Anza district or the surrounding colleges.

The only competition to the Certificate of Achievement in Steamfitting/Pipefitting program at Foothill College occurs from two out-of-state colleges that offer online degrees. Pipe Trades Training Center apprentices and recently graduated journeymen are taking online courses at Washtenaw Community College and National Labor College at considerably higher tuition, \$194/credit hour and \$297/credit hour respectively, and incurring other expenses in order to earn a Certificate of Achievement in Apprenticeship Completion or Construction Management. Offering a certificate of achievement would well serve the college's primary stakeholders: the students, community partners, and the community at-large.

Local references in support of the Certificate of Achievement in Steamfitting/Pipefitting include all Advisory Committee representatives from the Pipe Trades Training Center who strongly support the partnership between the Pipe Trades Training Center and Foothill College due to their understanding of local economic workforce needs and their ongoing contact with apprenticeship students, which provides grounded understanding of their students' short-term and long-term educational goals.

Item 5. Enrollment and Completer Projections

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
APPT 141	SF101 Basic Steamfitting Skills	3	36	2	29
APPT 142	SF 102 Related Math, Drawing & Rigging	1	11	2	21
APPT 143	SF 201 Cutting & Welding	2	20	1	13
APPT 144A	SF 202A Science, Electricity & Air Conditioning	1	14	1	15
APPT 134B	Industrial Safety	1	13	1	12
APPT 145	SF 301 Advanced Trade Math for Steamfitters	1	6	1	14
APPT 146	SF 302 Steam Technology	1	7	1	13
APPT 147A	SF 401A Hydronic Systems	1	12	1	8
APPT 147B	SF 401B Industrial Rigging	1	12	1	9
APPT 148	SF 402 Advanced Drawing & Blueprint Reading	1	12	1	18
APPT 139A	Industrial Installations	2	24	1	12
APPT 139B	Medical Gas Installations	2	27	1	11
APPT 129	Special Topics	2	25	2	23
APPT 130	Review & Turnout	2	24	1	16

Item 6. Place of Program in Curriculum/Similar Programs

The Certificate of Achievement in Steamfitting/Pipefitting does not adversely affect existing programs at Foothill College in terms of competition for students or courses, nor does it take material resources away from other existing programs at the college. The certificate of achievement creates pathways for students from pre-apprenticeship and apprenticeship through the opportunity to attain an associate's degree and potential transfer to a four-year institution. Thus, the students can easily move from the Certificate of Achievement in Steamfitting/Pipefitting to the Associate in Science in Steamfitting and Pipefitting Technology degree. This streamlined approach facilitates the students' ability to readily complete their educational goals and to earn family-supporting wages.

Item 7. Similar Programs at Other Colleges in Service Area

There are no similar programs in existence in the college service area of Foothill College. The partnership with the Lloyd E. Williams Pipe Trades Training Center is unique in the college service area.

Transfer Model Curriculum

CCC Major or Area of Emphasis: Elementary Teacher Education

CSU Major or Majors: Liberal Studies/Integrated Teacher Education Programs

Total units: 47 – 54 (all units are semester units)

Degree Type (indicate one): AA-T

Required Core Courses: 41 – 47 units

Title (units)	C-ID Designation	Rationale and Possible GE
Intro to Education (3)	EDUC 200	Elem Ed subject matter requirement
Earth Science for Educators (4) <i>Or</i> Earth Science with lab (4)	See example or GEOL 120 & 120L or GEOL 121	Elem Ed subject matter requirement
Public Speaking (3)	COMM 110	Meets A1 CSU GE – highly recommended for future teachers
College Composition (3)	ENGL 100	Meets A2 CSU GE
Physical Science for Educators (4) <i>Or</i> Survey of Physics & Chemistry (3) <i>Or</i> Intro to Chemistry (5) AND Intro to Physics (4)	See example or CHEM/PHYS 140 or See examples	Meets B1& B3 CSU GE - Elem Ed subject matter requirement
Biology for Educators (4) <i>or</i> General Biology w/lab (4)	See examples	Meets B2 & B3 CSU GE - Elem Ed subject matter requirement
Math for Elementary Teachers I (3)	MATH 120	Meets B4 CSU GE - Elem Ed subject matter requirement
World History to 1500 (3)	HIST 150	Meets C2 CSU GE - Elem Ed subject matter requirement
Intro to Literature (3)	ENGL 120	Meets C2 CSU GE - Elem Ed subject matter requirement
World Regional Geography (3)	GEOG 125	Meets D CSU GE - Elem Ed subject matter requirement
Intro to American Government and Politics (3)	POLS 110	Meets D CSU GE and fulfills U.S. History & American Institutions requirement - Elem Ed subject matter requirement
US History to 1877 (3)	HIST 130	Meets D CSU GE and fulfills U.S. History & American Institutions requirement - Elem Ed subject matter requirement
Child Growth and Development (3)	CDEV 100	Meets E CSU GE - Elem Ed subject matter requirement

List A: Select 1 course from the following:

3 - 4 units

Any course articulated as fulfilling CSU GE A3 with Freshman Composition as a prerequisite	Various	Meets A3 CSU GE
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List B: Select 1 course from the following:

3 units

Art Appreciation (3)	ARTH 100	All meet C1 CSU GE - Elem Ed subject matter requirement
Dance History and Appreciation or Introduction to Dance(3)	See examples	
Music Appreciation (3)	MUS 100	
Intro to Theatre (3)	THTR 111	
Survey of the Arts (3)	See example	

List C: Up to 12 additional units

Any course(s) not selected above, and/or any courses that are lower preparation for the targeted major at a university.

Note 1:

Additional requirements for the Elementary Teacher Education major may vary at each CSU campus. It is highly recommended that counselors at community colleges discuss other possible courses that are part of major preparation at a local CSU campus and encourage students to take some of these additional courses prior to transfer.

Note 2:

This TMC has been designed to meet the introductory content area subject matter requirements for teaching at the elementary school level. Careful consideration was given to identify a specific match to CSU general education requirements for transfer.

Note 3:

Due to the considerable overlap between the major requirements and general education (GE); this TMC presumes that all courses in the TMC do fill the indicated GE requirement. If the courses at a given college do not currently fill all the indicated GE requirements, colleges may want to pursue further CSU-GE approval, or a TMC-aligned degree may not be possible within the SB 1440-mandated 60 units.

Elementary Teacher Education

TMC Final Summary

After vetting, the finalized Liberal Studies – Teacher Education TMC has not been changed but for to allow more flexibility in the science areas and a change in title to more accurately reflect the content of the degree. This, in addition to Math for Elementary Teachers, seemed to be the areas of concern by respondents. As this is an interdisciplinary “core”, many of the responses during the vetting were with regard to campuses not having “like” courses. They also expressed concerns about being in a budget “climate” where faculty and administration are reluctant to develop new courses.

The FDRG took specific suggestions from the survey and added the option of a General Earth Science course with a lab (still the same C-ID descriptor, just different title). In the physical sciences area, an option of an Intro to Chemistry AND Intro to Physics course was added to alleviate the concerns expressed by the field of not having either a Physical Science for Educators or Survey of Chemistry and Physics course. It is important to note that the third option of both a Chemistry course and Physics course requires the student to accumulate more units (thus the 42 – 47 unit range), but still prepares the student for the content area and alleviates the need to take one of those courses after transfer.

In creating this flexibility, the FDRG maintained its position to stay true to the content required for future teachers to teach the California Curriculum Standards for K – 6 sciences. Prospective teachers are required to pass the Multiple Subjects CSET exam to prove “subject matter competency” in these standards. The courses selected for this TMC content area are believed to meet these requirements.

One area where the FDRG did not make changes in response to the field was with Math for Elementary Teachers. All students who wish to pursue teaching at the elementary level must take such a course. In fact, the course is taught in a & b segments at the CSU totaling 6 units. Many campuses throughout the community college system offer the first course (C-ID Math 120), and it is essential for the TMC to at least have the first course completed before transfer to meet the SB 1440 unit requirements. A few situations were discovered through the faculty “DIGs”, such as: 1) several community colleges offer both a & b on their campuses, 2) most community colleges offer the course with an Intermediate Algebra pre-req while other campuses require a transfer level math as a pre-requisite, and 3) many community colleges have the Math for Elementary Teachers course approved as meeting the CSU GE B4 requirement while others do not. The FDRG believes that these are local campus inconsistencies that may be straightened out through the implementation of the TMC.

Throughout the development of the TMC the faculty worked carefully to align each “subject area requirement” with the CSU GE requirement where appropriate, this allowing for “double-counting”. In fact, there are only two additional courses in the core that do not double count. One would be the Education (EDUC 200:Introduction to Elementary Classroom Teaching) course that serves as a pre-requisite to entering a credential program and as an opportunity to experience the “major” first-hand, and the other course being the additional science (beyond the two CSU certification required courses) which is a requirement to meet content standard preparation for Elementary Education.

Lastly, it is important to note that the TMC is designed to meet both the integrated (only 3 CSU campuses have this option) and non-integrated Liberal Studies teacher track program transfer requirements. However, community college counseling faculty, advisors and students must be made aware of specific additional courses that a CSU campus may require for their Liberal Studies major that can fit in the 10 – 12 remaining units to reach 60 transferrable units.

The FDRG had strong CSU and Community College representation. This group believes that the TMC as presented (with the additional flexibility) does not require further vetting.

Course descriptions for courses which do not presently have C-ID descriptors and numbers:

Dance History and Appreciation (3)

The development of dance in Western Europe and the U.S. from ancient times to the present. Explores dance as an emerging art form from the Renaissance to the 20th century. Emphasizes the contemporary dance heritage of the United States. (Santiago Canyon College)

Introduction to Dance (3)

An introduction to historical and contemporary dance forms through lecture and activity. Experience in ballet, modern, jazz, hip-hop, improvisation, folk, ethnic and/or ritual dance styles. Recommended for future teachers.

(Santa Ana College, DNCE 102)

Survey of the Arts (3)

In this course theatre, art, and music are explored through discussion, historical review, and contemporary issues. The purpose of this course is to increase students' understanding

and enjoyment of the arts. Requires attendance at selected events.

(Ohlone College, Arts, Mus, IS, TD 100- cross-listed)

Earth Science for Educators (4)

Earth Science 115: Earth Science for Educators

The study of the dynamic forces shaping the earth, including its oceans and atmosphere. This class is open to all majors but is oriented towards enhancing the earth science knowledge of future teachers. Also includes an introduction to the solar system. (Santa Ana College, Santiago Canyon College)

Biology for Educators (4)

Biology 115: Concepts in Biology for Educators

An investigation in the basic principles of Biology and Science with content appropriate for future multiple-subject teachers and secondary through high school. The course material is presented within the context of the human experience and includes cell biology, physiology, genetics, evolution, ecology, animal behavior, and the interaction of humans with the environment. The course is taught from an inquiry-based strategy using active learning.

(Santa Ana College)

Biology 109: Biology for Educators

This course provides each prospective multiple subject teacher with an introductory survey of the fundamental concepts of biology and the interrelationships among living organisms. Emphasis is placed upon the chemical basis of life, the role of cells in the formation of complex organisms, the relationship between structure and function in complex organisms like plants and animals, the role that genetics plays in the evolution of life, and the relationship between living organisms and the physical world around them. This course is recommended for students planning to take the CSET Multiple Subject Exam to become credentialed elementary school teachers in the State of California. (Citrus College)

General Biology w/lab (4)

Fundamental principles of human biology: development, major organ systems, heredity, evolution, health and disease processes in populations, and aspects of modern biology impacting the well-being and behavior of humans. Designed for non-science majors. (TCSU BIOL 11)

This course is an introductory course designed for non-science majors, which offers an integrated study of the basic principles of biology, with emphasis on the principles of structure and function, genetics, development, evolution, and ecology. Discussions on the philosophy, concepts, and implications of modern biology will be included.

(Riverside Community College, BIO 1)

This non-science majors laboratory course covers basic biological principles and how they relate to humans. Concepts included are cell chemistry, structure, and physiology; genetics (transmission and molecular); biotechnology; human body systems; evolution; reproduction and development; ecology; and human impacts on the environment.

(American River College, BIOL 310)

Physical Science for Educators (4)

Physical Science 115: Concepts in Physical Sciences for Educators

An investigation of basic principles of physics and chemistry including matter, physical and chemical properties, energy, motion, light, atomic structure, bonding, solutions and chemical reactions. The inter-dependence of chemistry and physics will be emphasized. Designed for non-science majors, concepts are introduced in lab through inquiry and further developed during discussion. (Santa Ana College)

Chemistry 115 Concepts in Physical Sciences for Educators (4)

Basic principles of physical science (chemistry and physics); concepts introduced through guided-inquiry labs and developed in discussion/lecture; content covers Physical Science requirements for multiple-subject teacher preparation programs. (Santa Ana College)

CHEM 104 C Physical Science for Teachers (4) (Same as PHSC 104 C)

Prerequisite: MATH 020 C with a minimum grade of “C”. This activity-based course provides an introduction to the basic concepts of physical science with emphasis on their practical importance and application in the real world. Topics include global warming, the automobile, health, and energy. This course is intended for students who want to become primary school teachers. Duplicate credit not granted for PHSC 104 C. (Cypress College)

Introduction to Chemistry

CHEM 101 F Introduction to Chemistry (5)

Prerequisite: MATH 040 F with a grade of “C” or better

Four hours lecture, one hour problem solving, and three hours lab per week. This is an introductory course emphasizing the principles of inorganic and organic chemistry. This course includes a lab and will meet physical science transfer requirements. This is a course required of numerous allied health science majors. (Fullerton College)

Introduction to Physics (4)

PHYSIC 101 Introduction to Physics (4)

For non-science majors. Introduces classical and modern physics: motion, gravity, heat, light, sound, electricity, magnetism, atomic and nuclear physics, relativity and quantum mechanics.

Prerequisites: MATH-070 Intermediate Algebra (College of the Canyons)

Transfer Model Curriculum
May 23, 2013

CCC Major or Area of Emphasis: Film, Television, and Electronic Media

CSU Major or Majors: Radio-Television-Film, Television-Film, Television, Video, Film, and Electronic Arts

Total units 18 (*all units are semester units*)

Degree Type (*indicate one*): AS-T

Required Core Courses:

Select 2 courses or 6 units minimum

Title	C-ID Designation	Rationale
Introduction to Electronic Media (3) or Introduction to Mass Communications (3)	FTVE 100 or JOUR 100	May qualify CSU GE Area C1 May qualify CSU Area D7
Introduction to Media Writing (3)	FTVE 110	
Introduction to Media Aesthetics and Cinematic Arts (3)	FTVE 105	May qualify CSU GE Area C1

List A:

**Select 1 Audio and 1 Video or Film production course from the following:
6 units minimum**

1 Audio course (3 units) from:

Title	C-ID Designation	Rationale
Beginning Audio Production (3)	FTVE 120	
Beginning Radio Production (3)	FTVE 125	

1 Video or Film course (3 units) from:

Title	C-ID Designation	Rationale
Beginning Single Camera Production (3)	FTVE 130	
Beginning TV Studio Production (3)	FTVE 135	
Beginning Motion Picture Production (3)	FTVE 150	

List B:

Select 1 course or 3 units minimum from courses not used from the above categories or any course articulated as lower division major preparation for the Film, Television and Electronic Media major at a CSU. Examples of courses that commonly are articulated as major preparation include:

Title	C-ID Designation	Rationale
Beginning Editing (3)	See example.	
Beginning Media Performance / Announcing (3)	See example	
<u>Production Course:</u>		
Introduction to Cinematography (3)	See example	
Documentary Production (3)	See example	
<u>Media History-Radio, Television or Film Course:</u>		
History of International Cinema: Emergence to WWII (3)	See example	May qualify for CSU GE Area C1 and/or C2
History of International Cinema: WWII to the present (3)	See example	May qualify for CSU GE Area C1 and/or C2
History of American Cinema to the 1960s (3)	See example	May qualify for CSU GE Area C1 and/or C2
Contemporary American Film (3)	See example	May qualify for CSU GE Area C1 and /or C2
Contemporary World Cinema (3)	See example	May qualify for CSU GE Area C1 and/or C2

List C:

Select 1 course or 3 units minimum from courses not used from the above categories or from the following:

Non-fiction/Reality Production (3)	See example	
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Introduction to Motion Graphics (3)	See example	
Internship (limit of 3 units)	See example	
Or any course articulated as fulfilling CSU GE Area C or any CSU transferable film, television and electronic media course		

C-ID and articulation requirement summary:

TMC Component	Requirement
Core	C-ID
List A	C-ID
List B	C-ID (not used above) or major prep articulation
List C	C-ID (not used above), major prep articulation, CSU GE Area C, or any CSU transferable film, television and electronic media course

Sample Course Descriptions

Beginning Editing (3)

Aesthetics and use of non-linear editing software for film and television including both narrative and non-narrative forms. (Mt. San Antonio College)

Beginning Media Performance / Announcing (3)

This course covers basic theory and practice in areas of speech improvement with emphasis on development of the voice, articulation, and pronunciation. Study and practice of the oral skills essential to the effective communication of meaning in scripts, newscasts, and commercial messages to audiences. Voice improvement through exercises in tone production and pronunciation. (Butte College)

Production Courses:

Introduction to Cinematography (3)

Introduction to the fundamental technical and aesthetic principles of motion picture photography. Practical training in the use of motion picture cameras. Introduction to image control through exposure, lighting, and selection of film, camera, lens, and filters. Examination of the cinematographer as a visual storyteller to develop a broader understanding of the balance between artist and technician. Examination of the different crew positions and processes of the camera crew. Total of 36 hours lecture and 72 hours laboratory. (Pasadena City College)

Documentary Production (3)

Comprehensive overview of all aspects of digital film/video production from script concept to finished project, centering on basic theory and its application via exams, demonstrations, and hands-on experiences with digital media exercises. (LA Pierce College)

Reality Show Production (3)

Conception and production of reality show television programs using specialized equipment and techniques

Motion Graphics (3)

Basic instruction using the computer for motion graphic design and composite digital video production. Emphasis on time based media and its application to creative problem solving and communication solutions. (Fullerton College)

Media History- Film, Television or Electronic Media Courses:

History of International Cinema: Emergence to WWII (3)

Surveys international film from its emergence in the 1890s through WWII. Through the examination of narrative, documentary and experimental film, the medium's technical, aesthetic, and theoretical developments with a focus on historical, cultural and economic influences that contributed to the international art form. (Moorpark College)

History of International Cinema: WWII to the present (3)

A survey of international cinema from World War II to the present. Through the examination of narrative, documentary and experimental film, the medium's technical, aesthetic, and theoretical development will be investigated. Particular attention will be given to the historical, cultural and economic influences that contributed to the international art form. (Moorpark College)

History of American Cinema to the 1960s (3)

Study of the evolution of the Hollywood studio system to the 1960s. The development, history and aesthetics of the American film, as well as its impact on our culture. Study of classic films as forms of popular entertainment and cinematic art, including various Hollywood genres and their independent counterparts. Lectures, discussions and readings are supplemented by the screening and critical analysis of representative films. (Santa Barbara City College)

Contemporary American Film (3)

Study of the changes of the Hollywood studio system, alternative productions, and independent film since the 1960s. Covers the decline of the studio system, the rise of American New Wave cinema, the history of the blockbuster, the parallel histories of independent and underground film, changing audiences, the effects of new technology, the presence of media conglomerates, women in U.S. cinema, and the popularity of documentary films.

(Santa Barbara City College)

Contemporary World Cinema (3)

Introduces contemporary foreign cinema, to include the examination of genres, themes and styles. Emphasis is placed on cultural, economic, and political influences as artistically determining factors. Film and cultural theories such as national cinemas, colonialism, and orientalism will be introduced. (Moorpark College)

Internship (1) limit of 3 units

Work experience in the film, television and broadcasting industries, under the supervision of an onsite and a faculty supervisor. A minimum of 75 hours per unit for paid work or 60 hours for unpaid work. (Mt. San Antonio College)

Summary of TMC Feedback Including Issues and Concerns

1. Due to the upper-division training needed in most subject areas, CSU Faculty insisted that all such courses have “Beginning” or “Introduction to” preface these subject area titles.
2. The group recognized the need to separate the production degree preparation from that of Film Studies, which would thus need to have its own TMC.
3. The title of the subject changed from “Radio-Television-Film” to “Film, Television and Electronic Media” for several reasons. Among them was the recognition that few four-year Radio programs remain, and that several CCCs are able to offer completion degrees locally. Another reason was the difficulty in providing a second track that would serve radio students without unneeded courses outside of their discipline from the core through completion.
4. The Core reflects a difference in lower division courses across the state, such that a choice of two out of three was necessary.
5. The Core also allows for variations in departmental organization across the state. While some colleges have Journalism integrated with Television, and use Mass Communications as their course title, others have them separated and use a designation variously known as Introduction to Broadcasting, Electronic Media, and so forth. Consultations with the head of the Journalism TMC were conducted, which allow for the substitution of Mass Communications where the Electronic Media course does not exist.
6. The title Electronic Media was selected to help differentiate the course from print media such as Journalism, and from Broadcasting, which is a term that is a subset of Electronic Media. It also allows for new media to be included as entertainment technology continues to evolve.
7. The List A duality, requiring a beginning course in both audio and video or motion picture production, was another important requirement for the CSU participants.
8. Lists B and C allow room for the variety of lower-division preparation across the state, which can lead to an even greater variety of production specialty coursework. These also allow for the CTE courses that have developed at the CCC's which the CSU campuses are willing to recognize. Thus editing, performance (or announcing), media history, production and internship courses are included.

Transfer Model Curriculum Worksheet

CCC Major or Area of Emphasis: _____ Nutrition and Dietetics _____

CSU Major or Majors: _____ Nutrition and Dietetics _____

Total units 25-28 (all units are semester units)

Degree Type (indicate one): AA-T OR AS-T X

“Core” Courses:

15-16 units

Title (units)	C-ID Designation	Rationale (Potential CSU GE)
Nutrition (general) (3)	NUTR 110	Required by all degrees and offered by most CC (E)
Introductory Psychology (3)	PSY 110	Required by all degrees and offered by most CC (D9)
General Chemistry for Science Majors I, with Lab (5)	CHEM 110	Required by all degrees and offered by most CC (B1, B3)
Microbiology with Lab (4-5)	See sample. Course must be articulated as major preparation for the nutrition/dietetics major at a CSU.	Required by all degrees and offered by most CC. Provided a sample course from a CCC. (B2, B3)

List A. Select 2 courses from the following: 7-8 units

General Chemistry for Science Majors Sequence A (2 nd semester) (4)	CHEM 120S	DPD programs have different requirements
Organic Chemistry for Science Majors I, with Lab (4)	CHEM 150	
Human Physiology with Lab (4)	BIOL 120B	Some DPD programs require Anatomy and Physiology; other programs only require physiology
Human Anatomy with Lab (4)	BIOL 110B	
*Human Anatomy and Physiology with Lab (8)	BIOL 115S	*Sequence descriptor would be associated with

		2 courses. Note: students can not be awarded credit for BIOL 120B or BIOL 110B AND BIOL 115S as BIOL 115S is a sequence descriptor that effectively consists of both BIOL 120B and BIOL 110B.
Introduction to Statistics (3)	MATH110 or SOC125	DPD programs offer different options for statistics requirements

List B Select 1 course from the following (3-4 units):

Principles of Food with lab (3)	NUTR 120	
Any other course(s) articulated as major preparation for the nutrition/dietetics major at CSU or UC.		