College Curriculum Committee Meeting Agenda
Tuesday, October 17, 2023
2:00 p.m. – 3:30 p.m.
Administrative Conference Room 1901; virtual option via Zoom

Item	Time*	Action	Attachment(s)	Presenter(s)
1. Minutes: October 3, 2023	2:00	Action	#10/17/23-1	Kaupp
2. Report Out from Division Reps	2:02	Discussion		All
3. Public Comment on Items Not on Agenda (CCC cannot discuss or take action)	2:12	Information		
4. Announcements a. GE Subcommittee Membership b. CCC Priorities for 2023-24 c. ASCCC Area B Meeting & Fall Plenary	2:17	Information	#10/17/23-2	CCC Team
5. New Certificate Application: Animation	2:27	2nd Read/ Action	#10/17/23-3	Kaupp
6. New Certificate Application: Web Applications Development	2:30	2nd Read/ Action	#10/17/23-4, 6, 7	Kaupp
7. New Certificate Application: Advanced Web Applications Development	2:33	2nd Read/ Action	#10/17/23-5–7	Kaupp
8. Stand Alone Application: ENGR 101A	2:36	2nd Read/ Action	#10/17/23-8	Kaupp
9. Stand Alone Applications: LINC 79A, 79B, 79C, 79D	2:39	2nd Read/ Action	#10/17/23-9–13	Kaupp
10. Cross-List Application: C S 81	2:42	Action	#10/17/23-14	Kaupp
11. Cross-List Application: HUMN 12H & MDIA 12H	2:45	Action	#10/17/23-15	Kaupp
12. Stand Alone Application: ALCB 452Y	2:48	1st Read	#10/17/23-16	Kaupp
13. Best Practices for Equitable COR Updates	2:51	Discussion		Kaupp
14. AB 928—singular transfer GE pathway (CalGETC); auto-enrolling students into ADT pathway	3:07	Discussion		Gilstrap
15. Good of the Order	3:27			Kaupp
16. Adjournment	3:30			Kaupp

**Times listed are approximate*

Attachments:

#10/17/23-1	Draft Minutes: October 3, 2023
#10/17/23-2	Current GE Subcommittee Membership list for 2023-24
#10/17/23-3	New Certificate Application: Animation (updated)
#10/17/23-4 & 6	New Certificate Application: Web Applications Development
#10/17/23-5–6	New Certificate Application: Advanced Web Applications Development
#10/17/23-7	Course Sequences for Web Applications Development CAs
#10/17/23-8	Stand Alone Application: ENGR 101A
#10/17/23-9–13	Stand Alone Applications: LINC 79A, 79B, 79C, 79D
#10/17/23-14	Cross-Listed Course Application: C S 81 (adding to establisted cross-listing of BIOL 81, CHEM 81 & MATH 83)

#10/17/23-15 Cross-Listed Course Application: HUMN 12H & MDIA 12H
#10/17/23-16 Stand Alone Application: ALCB 452Y

2023-2024 Curriculum Committee Meetings:

Fall 2023 Quarter	Winter 2024 Quarter	Spring 2024 Quarter
~~10/3/23~~	1/16/24	4/16/24
10/17/23	1/30/24	4/30/24
10/31/23	2/13/24	5/14/24
11/14/23	2/27/24	5/28/24
11/28/23	3/12/24	6/11/24

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

2023-2024 Curriculum Deadlines:

12/1/23	Deadline to submit courses to CSU for CSU GE approval (Articulation Office).
12/1/23	Deadline to submit courses to UC/CSU for IGETC approval (Articulation Office).
TBD	Deadline to submit curriculum sheet updates for 2024-25 catalog (Faculty/Divisions).
6/1/24	Deadline to submit new/revised courses to UCOP for UC transferability (Articulation Office).
TBD	Deadline to submit course updates and local GE applications for 2025-26 catalog (Faculty/Divisions).
Ongoing	Submission of courses for C-ID approval and course-to-course articulation with individual colleges and universities (Articulation Office).

Distribution:
Ulysses Acevedo (LA), Micaela Agyare (LRC), Chris Allen (Dean, APPR), Jeff Bissell (KA), Cynthia Brannvall (FAC), Rachelle Campbell (HSH), Anthony Cervantes (Dean, Enrollment Services), Sam Connell (BSS), Angie Dupree (BSS), Jordan Fong (FAC), Valerie Fong (Dean, LA), Evan Gilstrap (Articulation Officer), Stacy Gleixner (VP Instruction), Kurt Hueg (Administrator Co-Chair), Maritza Jackson Sandoval (CNSL), Ben Kaupp (Faculty Co-Chair), Andy Lee (CNSL), Brian Murphy (APPR), Tim Myres (APPR), Teresa Ong (AVP Workforce), Sarah Parikh (STEM), Eric Reed (LRC), Richard Saroyan (SRC), Amy Sarver (LA), Paul Starer (APPR), Ram Subramaniam (Dean, STEM), Kyle Taylor (STEM), Mary Vanatta (Curriculum Coordinator), Voltaire Villanueva (AS President)

Updated 10/3/23

COLLEGE CURRICULUM COMMITTEE

Committee Members – 2023-24

Meeting Date: 10/17/23

Co-Chairs (2)

✔*	Ben Kaupp	408-874-6380	Vice President, Academic Senate (tiebreaker vote only)	kauppben@fhda.edu
✔*	Kurt Hueg	7179	Associate Vice President of Instruction	huegkurt@fhda.edu

Voting Membership (1 vote per division)

✔*	Ulysses Acevedo	7507	LA	acevedoulysses@fhda.edu
✔*	Micaela Agyare	7086	LRC	agyaremicaela@fhda.edu
✔	Jeff Bissell	7663	KA	bisselljeff@fhda.edu
✔*	Cynthia Brannvall	7477	FAC	brannvallcynthia@fhda.edu
✔*	Rachelle Campbell	7469	HSH	campbellrachelle@fhda.edu
✔*	Sam Connell	7197	BSS	connellsamuel@fhda.edu
✔*	Angie Dupree		BSS	dupreeangelica@fhda.edu
✔*	Jordan Fong	7272	FAC	fongjordan@fhda.edu
✔*	Valerie Fong	7135	Dean—LA	fongvalerie@fhda.edu
✔*	Evan Gilstrap	7675	Articulation	gilstrapevan@fhda.edu
✔*	Maritza Jackson Sandoval	7409	CNSL	jacksonsandovalmaritza@fhda.edu
✔*	Andy Lee	7783	CNSL	leeandrew@fhda.edu
	Brian Murphy		APPR	brian@pttc.edu
	Tim Myres		APPR	timm@smw104jatc.org
✔*	Sarah Parikh	7748	STEM	parikhsarah@fhda.edu
✔	Eric Reed	7091	LRC	reederic@fhda.edu
✔	Richard Saroyan	7232	SRC	saroyanrichard@fhda.edu
✔	Amy Sarver	7459	LA	sarveramy@fhda.edu
✔*	Ram Subramaniam	7426	Dean—STEM	subramaniamram@fhda.edu
✔*	Kyle Taylor	7126	STEM	taylorkyle@fhda.edu

Non-Voting Membership (4)

			ASFC Rep.	
✔*	Mary Vanatta	7439	Curr. Coordinator	vanattamary@fhda.edu
			Evaluations	
			SLO Coordinator	

Visitors

Chris Allen*

** Indicates in-person attendance*

College Curriculum Committee
Meeting Minutes
Tuesday, October 3, 2023
2:00 p.m. – 3:30 p.m.
Administrative Conference Room 1901; virtual option via Zoom

Item	Discussion
1. CCC Orientation	**Speakers: Evan Gilstrap & Ben Kaupp** Ben shared PowerPoint presentation, overview of process and responsibilities pertaining to CCC rep role. CCC Team will be holding a more comprehensive orientation, for both new and returning reps. Hueg asked if division CCs are required to follow Brown Act—Kaupp responded, yes, because they are approving curriculum. Gilstrap shared PowerPoint presentation, overview of articulation. Brannvall asked about timeline for reactivation of a course—Gilstrap explained nuances and various deadlines.
2. Minutes: June 20, 2023	**Approved by consensus.**
3. Introductions & Report Out from Division Reps	**Speaker: All** All attendees introduced themselves! Vanatta currently following up w/ faculty re: COR submissions from June; reps are CC'd on emails but don't necessarily need to take action (will make clear when reps' attention needed). In the finishing stages of the newest CourseLeaf module, for new degrees/certs—expects to launch in November. Gilstrap shared info re: state mandates. AB 928 is singular transfer GE pathway (AKA CalGETC); also includes requirement for colleges to auto-enroll students into ADT pathway (starting fall 2024). Title 5 changes to language re: local associate degree. AB 1111 is Common Course Numbering mandate—still in very beginning stages, state-level taskforce currently meeting; CCCCO has requested extension from legislature to implement fall 2027. Gilstrap plans to provide more detailed information on each of these later in the quarter/year. Counseling: Jackson Sandoval and Lee are reps. Shared counseling appt. system opens seven days in advance, also offer quick question counseling (AKA drop-in); students can check-in with front desk to see about availability. HSH: Campbell is rep for fall; Draper will be rep for winter/spring. Shared new Respiratory Care bachelor degree launching. Some programs may be moving to Sunnyvale Center. Fine Arts & Comm: Brannvall and J. Fong are reps. Mentioned new certs in Photography dept., exciting new ART courses. Mentioned new group convened to identify places on campus to put art. STEM: Parikh and Taylor are reps. Mentioned new semiconductor courses being created. Language Arts: Acevedo and Sarver are reps. Mentioned new SPAN course being created, as well as new cert from that dept. BSS: Connell and Dupree are reps. Connell noted interest in creating new transcriptable certs from non-transcriptable certs. Noted recent

	discussion about auto-awarding degrees and would like CCC to discuss. LRC: Agyare and Reed are reps. Shared Library opening for limited hours on Friday during fall quarter! Apprenticeship: Allen shared bachelor degree proposal has been submitted to CCCCO! Noted thanks for Zoom option for CCC meetings. Myres is rep. Shared division CC had first meeting a few weeks ago—discussed goals for the year, including local GE applications for Sheet Metal and HVAC programs. SRC: Kaupp noted no updates to report. Saroyan is rep. Kinesiology & Athletics: Bissell is rep. Shared no updates to report. V. Fong and Subramaniam are deans; neither has updates to report.
4. Public Comment on Items Not on Agenda	Connell again mentioned topic of auto-awarding of degrees and desire for discussion at CCC.
5. Announcements a. GE Subcommittee Membership b. CCC Priorities for 2023-24 c. Recent CCCCO Approvals!	**Speakers: CCC Team** Announcement delayed to future meeting, due to time constraint. Announcement delayed to future meeting, due to time constraint. Vanatta announced that, over the summer, we received state approval for our new Commercial Photography and Photography noncredit certs; and our new Commercial Photography, Digital Photography Techniques, and Non-Destructive Testing (NDT) Technician CAs!
6. New Certificate Application: Animation	**Speaker: Ben Kaupp** First read of new Animation Certificate of Achievement. Campbell asked what types of things CCC members are looking for when reviewing applications—Kaupp responded, anything the person believes is important and encouraged folks to ask questions. First read is opportunity for discussion, and usually division reps will try to address questions. Connell asked about unit requirements for certs—Vanatta responded, minimum for state approval is 12 units, but cert must be 24+ units for students to apply for Financial Aid. Further discussion occurred re: what CCC members should consider when reviewing applications—e.g., is there content overlap with other depts. or degrees/certs, is there student need/demand for degree/cert, what benefit does degree/cert provide to students? J. Fong created cert and shared that required courses already being taught. Lots of related industry in Bay Area; noted discussion at Advisory Board resulted in enthusiastic approval. Brannvall asked if certs are a way to acknowledge certain skills to enter the workforce (vs. a full degree)—J. Fong noted this particular cert will help students enter the workforce without needing a full degree. Connell asked about next steps, following CCC approval—Vanatta responded, FHDA Board approval, then submission to CCCCO for approval. Campbell noted these questions indicate missing elements in our process; for example, CCC doesn't review Advisory Board minutes, which could be very helpful in addressing questions and adding insight into why degree/cert being created. Vanatta noted that although CCCCO requires Advisory Board minutes for degrees/certs w/ workforce TOP Code, CCC historically hasn't incl. them as part of documentation reviewed; doesn't always have this document from faculty at time of CCC review, but group can decide to start requiring it.

	Gilstrap noted Cogswell College (mentioned in Item 7) is now called University of Silicon Valley—Vanatta will update for second read. Second read and possible action will occur at next meeting.
7. New Certificate Application: Web Applications Development	**Speaker: Ben Kaupp** First read of new Web Applications Development Certificate of Achievement. Kaupp noted faculty authors aren't present; Parikh encouraged folks to email any questions to her. Second read and possible action will occur at next meeting.
8. New Certificate Application: Advanced Web Applications Development	**Speaker: Ben Kaupp** First read of new Advanced Web Applications Development Certificate of Achievement. Kaupp noted faculty authors aren't present; Parikh encouraged folks to email any questions to her. Second read and possible action will occur at next meeting.
9. Stand Alone Application: ENGR 101A	**Speaker: Ben Kaupp** First read of Stand Alone Approval Request for ENGR 101A. Will be temporarily Stand Alone and included in a new certificate. Parikh explained course will be included in new Apprenticeship program, which students have already started working on. Expectation that lots of jobs will be created as chip manufacturing is brought back to the US. Students being paid to work in clean rooms while simultaneously taking courses here at Foothill. Subramaniam noted course is approved for early activation (winter 2024). Second read and possible action will occur at next meeting.
10. Stand Alone Applications: LINC 79A, 79B, 79C, 79D	**Speaker: Ben Kaupp** First read of Stand Alone Approval Requests for LINC 79A, 79B, 79C & 79D. Each will be temporarily Stand Alone and included in a new certificate. No comments. Second read and possible action will occur at next meeting.
11. Best Practices for Equitable COR Updates	**Speaker: Ben Kaupp** Topic delayed to future meeting, due to time constraint.
12. Good of the Order	Vanatta asked Kaupp about orientation meeting—Kaupp will email folks to determine interest and best date/time to schedule. Subramaniam congratulated Kaupp for leading his first CCC meeting!
13. Adjournment	**3:26 PM**

Attendees: Ulysses Acevedo* (LA), Chris Allen* (Dean, APPR), Micaela Agyare* (LRC), Jeff Bissell (KA), Cynthia Brannvall* (FAC), Rachelle Campbell* (HSH), Sam Connell* (BSS), Cathy Draper* (HSH), Angie Dupree (BSS), Jordan Fong* (FAC), Valerie Fong* (Dean, LA), Evan Gilstrap* (Articulation Officer), Kurt Hueg* (Administrator Co-Chair), Maritza Jackson Sandoval* (CNSL), Ben Kaupp* (Faculty Co-Chair), Andy Lee* (CNSL), Tim Myres* (APPR), Sarah Parikh* (STEM), Eric Reed (LRC), Richard Saroyan (SRC), Amy Sarver (LA), Ram Subramaniam* (Dean, STEM), Kyle Taylor* (STEM), Mary Vanatta* (Curriculum Coordinator)
** Indicates in-person attendance*

Minutes Recorded by: M. Vanatta

Foothill College
College Curriculum Committee
GE Subcommittee Membership for 2023-24

Highlighted in yellow = unconfirmed carryover from last year
Highlighted in green = confirmed for this year

Area I - Humanities
Cynthia Brannvall, Ben Armerding (leave for Fall)

Area II - English
Kay Thornton, Ben Armerding (leave for Fall)

Area III - Natural Sciences
Catherine Draper, need 1 more

Area IV - Social & Behavioral Sciences
Kay Thornton, need 1 more

Area V - Communication & Analytical Thinking
Lety Serna, need 1 more

Area VI - United States Cultures & Communities
Milissa Carey, Lety Serna

Area VII - Lifelong Learning
Lety Serna, Andy Lee

Kay Thornton is happy to be moved as needed. Will serve on two (moved her to A2 for now pending word on Ben A)

Foothill College
Credit Program Narrative
Certificate of Achievement in Animation

Item 1. Program Goals and Objectives

The Certificate of Achievement in Animation would provide a foundation for students interested in pursuing a career in the film, TV, or game animation industries, as well as for students planning to transfer to a baccalaureate program in Animation. Objectives would be to expose students to professional pre-production and production animation methods that include storyboard design, character design, layout design, environment design, 2-D animation, and 3-D computer animation. Students will also learn skills in verbal, written, and visual communication.

Program Learning Outcomes:

- Students will be prepared to transfer to a baccalaureate program in Animation.
- Students will be prepared to pursue a career in the film, TV, or game animation industries.
- Students will be prepared for a career as 2-D and 3-D animators, illustrators, storyboard artists, visual development artists, or background artists.

Item 2. Catalog Description

The Certificate of Achievement in Animation provides an immersive foundation for students interested in pursuing a career in the film, TV, or game animation industries, and for students planning to transfer to a baccalaureate program in Animation. Students are exposed to professional pre-production and production animation methods, including storyboard design, character design, layout design, environment design, 2-D animation, and 3-D computer animation.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (16 units)	GID 37	CARTOON & COMIC ILLUSTRATION I	4	Year 1, Fall
	GID 44A	FUNDAMENTALS OF 3-D ANIMATION	4	Year 1, Winter
	GID 60	CAREERS IN THE VISUAL ARTS	2	Year 1, Fall
	GID 61	PORTFOLIO	2	Year 1, Spring
	GID 71	STORYBOARDING	4	Year 1, Spring

TOTAL UNITS: 16 units

While the Proposed Sequence projects students to complete this Certificate of Achievement within one year, students can take these courses out of sequence and complete them within two years, or longer if needed, as well. All of the courses are offered in multiple modalities—F2F, Hybrid, and Online.

Proposed Sequence:
Year 1, Fall = 6 units

Year 1, Winter = 4 units
Year 1, Spring = 6 units
TOTAL UNITS: 16 units

Item 4. Master Planning

Under Foothill College's current Mission Statement (2022-23), creating this certificate would empower students to achieve their goals as members of the workforce, specifically the film, TV, or game animation industries. This new certificate also serves multiple disciplines. The skills learned from this certificate are transferable into other careers, such as illustrator, painter, script writer, screenwriter, or Art Director, to name a few, that may not be directly associated with Animation but are related.

Item 5. Enrollment and Completer Projections

20 students are projected to complete the Certificate of Achievement in Animation, based on averaging the total student enrollment of the historical enrollment data from the past two years. After five years, 100 students are projected to complete the certificate, based on using the projected number of students to complete the program after the initial year, and then multiplying it by 5. However, this does not consider the positive effect and impact that marketing and outreach would have to help increase the awareness and overall enrollment for the certificate.

		Year 1		Year 2	
Course #	Course Title	Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
GID 37	CARTOON & COMIC ILLUSTRATION I	2	47	2	39
GID 44A	FUNDAMENTALS OF 3-D ANIMATION	1	18	1	15
GID 60	CAREERS IN THE VISUAL ARTS	1	29	1	23
GID 61	PORTFOLIO	1	23	1	16
GID 71	STORYBOARDING	1	11	N/A	N/A

Item 6. Place of Program in Curriculum/Similar Programs

Foothill College is currently teaching most of these classes regularly. GID 71 was scheduled to be taught Spring 2020 but was taken off due to faculty going on Paid Parental Leave. This would allow for students to take an increased variety of classes and improve their skills in verbal, written, and visual communication. These skills are necessary to pursue and be successful in a career in the film, TV, or game animation industries.

Item 7. Similar Programs at Other Colleges in Service Area

De Anza College currently offers an Certificate of Achievement in Animation, as well as an Associate in Arts Degree in Animation. Similar successful programs outside of Foothill's service area include the Academy of Art University, San José State, and University of Silicon Valley (formerly Cogswell College), to name a few.

Additional Information Required for State Submission:

TOP Code: 0614.40 - Animation

Annual Completers: 20

Net Annual Labor Demand: 2,778 annual openings

Faculty Workload: 1

New Faculty Positions: 0

New Equipment: 0

New/Remodeled Facilities: 0

Library Acquisitions: 0

Gainful Employment: Yes

Program Review Date: Fall, 2024

Distance Education: 100%

Labor Market Information Report
Animation Occupations
Foothill College

Prepared by the San Francisco Bay Center of Excellence for Labor Market Research
November 2022

Recommendation

Based on all available data, there appears to be an "undersupply" of Animation workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 2,371 students in the Bay region and 605 students in the Silicon Valley Sub-Region.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0614.40 Animation programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

This report profiles Animation Occupations in the 12 county Bay region and in the Silicon Valley sub-region for exploratory purposes related to an Animation for Graphics & Interactive Design program at Foothill College.

- **Web and Digital Interface Designers (15-1255):** Design digital user interfaces or websites. Develop and test layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices. May use web framework applications as well as client-side code and processes. May evaluate web design following web and accessibility standards, and may analyze web use metrics and optimize websites for marketability and search engine ranking. May design and test interfaces that facilitate the human-computer interaction and maximize the usability of digital devices, websites, and software with a focus on aesthetics and design. May create graphics used in websites and manage website content and links.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: NA%

- **Art Directors (27-1011):** Formulate design concepts and presentation approaches for visual communications media, such as print, broadcasting, and advertising. Direct workers engaged in art work or layout design.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

- **Special Effects Artists and Animators (27-1014):** Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

- **Graphic Designers (27-1024):** Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

- **Designers, All Other (27-1029):** All designers not listed separately.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 29%

Occupational Demand

Table 1. Employment Outlook for Animation Occupations in Bay Region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Web and Digital Interface Designers	5,870	6,911	1,041	18%	3,388	678	$35	$58
Art Directors	4,020	3,941	-80	-2%	2,123	425	$17	$45
Special Effects Artists and Animators	3,664	2,976	-688	-19%	1,701	340	$27	$46
Graphic Designers	10,678	10,976	298	3%	5,377	1,075	$22	$33
Designers, All Other	2,504	2,514	10	0%	1,302	260	$16	$30
Total	**26,736**	**27,317**	**581**	**2%**	**13,892**	**2,778**		

Source: EMSI 2022.3

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

Table 2. Employment Outlook for Animation Occupations in Silicon Valley Sub-region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Web and Digital Interface Designers	1,798	2,105	307	17%	1,004	201	$39	$66
Art Directors	912	795	-118	-13%	433	87	$22	$58
Special Effects Artists and Animators	1,271	780	-491	-39%	482	96	$31	$45
Graphic Designers	2,372	2,357	-15	-1%	1,094	219	$24	$35
Designers, All Other	507	540	33	7%	303	61	$19	$40
Total	**6,860**	**6,577**	**-283**	**-4%**	**3,316**	**664**		

Source: EMSI 2022.3

Silicon Valley Sub-Region includes: Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region

Table 3. Number of Job Postings by Occupation for latest 12 months (Oct. 2021 – Sept. 2022)

Occupation	Bay Region	Silicon Valley
Graphic Designers	3,329	1,129
Designers, All Other	2,502	654
Computer Occupations, All Other	1,672	765
Art Directors	1,134	277
Multimedia Artists and Animators	775	293

Source: Burning Glass

Table 4a. Top Job Titles for Animation Occupations for latest 12 months (Oct. 2021 – Sept. 2022) - Bay Region

Title	Bay	Title	Bay
Graphic Designer	596	Senior Visual Designer	78
Visual Designer	227	Senior Consultant	76
Designer	178	Ux/Visual Designer II	74
Art Director	161	Production Designer	68
Creative Director	122	Brand Designer	62
Senior Designer	118	Junior Designer	59
Ux/Visual Designer III	95	Interaction Designer	55
Content Designer	91	Junior Graphic Designer	49
Senior Graphic Designer	81	Ux/Visual Designer	46

Source: Burning Glass

Table 4b. Top Job Titles for Animation Occupations for latest 12 months (Oct. 2021 – Sept. 2022) - Silicon Valley Sub-Region

Title	Silicon Valley	Title	Silicon Valley
Graphic Designer	151	Interaction Designer	31
Ux/Visual Designer III	61	Production Designer	29
Visual Designer	58	Senior Designer	28
Ux/Visual Designer II	39	Content Designer	25
Designer	37	Technical Marketing Engineer	22
Ux/Visual Designer	34	Art Director, Interactive	20

Title	Silicon Valley	Title	Silicon Valley
Senior Digital Design Engineer	33	Senior Graphic Designer	20
Senior Visual Designer	33	Creative Director	19
Art Director	32	Creative Designer	15

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Animation Workers in Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2020)	Jobs in Industry (2025)	% Change (2020-25)	% Occupation Group in Industry (2020)
Graphic Design Services	2,883	2,682	-7%	11%
Interior Design Services	2,423	2,616	8%	9%
Internet Publishing and Broadcasting and Web Search Portals	2,561	2,971	16%	9%
Software Publishers	2,555	2,158	-16%	7%
Custom Computer Programming Services	1,784	2,035	14%	7%
Computer Systems Design Services	967	1,033	7%	4%
Advertising Agencies	645	576	-11%	2%
Independent Artists, Writers, and Performers	489	553	13%	2%
Other Specialized Design Services	494	518	5%	2%
Industrial Design Services	488	507	4%	2%

Source: EMSI 2022.3

Table 6. Top Employers Posting Animation Occupations in Bay Region and Silicon Valley Sub-Region (Oct. 2021 – Sept. 2022)

Employer	Bay	Employer	Silicon Valley
Deloitte	539	Deloitte	367
Apple Inc.	150	Apple Inc.	150
Google Inc.	132	Google Inc.	81
Facebook	131	Pinnacle Group	45
Wells Fargo	77	Palo Alto Networks	37
Walmart/Sam's	76	Russell Tobin & Associates	32

Source: Burning Glass

Educational Supply

There are 11 community colleges in the Bay Region issuing 163 awards on average annually (last 3 years ending 2019-20) on TOP 0614.40 Animation. In the Silicon Valley Sub-Region, there are three (3) community colleges that issued 12 awards on average annually (last 3 years) on this TOP code.

There are a four (4) other CTE educational institutions in the Bay Region issuing 244 awards on average annually (last 3 years ending 2019-20) on CIP 10.0304 - Animation, Interactive Technology, Video Graphics and Special Effects. There is one (1) other CTE educational institution in the Silicon Valley Sub-Region issuing 47 awards on average annually (last 3 years) on this CIP code.

Table 7a. Community College Awards on TOP 0614.40 - Animation in Bay Region

College	Subregion	Associate Degree	Award < 1 academic yr.	Total
Berkeley City College	East Bay	9	27	36
Canada College	Mid-Peninsula	5	5	10
City College of San Francisco	Mid-Peninsula	0	7	7
College of Marin	North Bay	3	3	6
De Anza College	Silicon Valley	9	1	10
Diablo Valley College	East Bay	11	6	17
Foothill College	Silicon Valley	0	1	1
Hartnell College	SC-Monterey	9	9	18
Ohlone College	East Bay	4	10	14
Santa Rosa Junior College	North Bay	24	19	43
West Valley College	Silicon Valley	1	0	1
Total		**75**	**88**	**163**

Note: The annual average for awards is 2017-18 to 2019-20.

Table 7b. Other CTE Institutions Awards on CIP 10.0304 - Animation, Interactive Technology, Video Graphics and Special Effects in Bay Region

College	Subregion	Associate Degree	Bachelor's degree	Total
Academy of Art University	Mid-Peninsula	11	119	130
California College of the Arts	Mid-Peninsula	0	48	48
Cogswell University of Silicon Valley	Silicon Valley	0	47	47
SAE Expression College	East Bay	0	19	19
Total		**11**	**233**	**244**

Note: The annual average for awards is 2017-18 to 2019-20.

Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 2,778 annual openings for the Animation occupational cluster and 407 annual (3-year average) awards for an annual undersupply of 2,371 students. In the Silicon Valley Sub-Region, there is also a gap with 664 annual openings and 59 annual (3-year average) awards for an annual undersupply of 605 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0614.40 Animation

Metric Outcomes	Bay All CTE Programs	Foothill All CTE Programs	State 0614.40	Bay 0614.40	Silicon Valley 0614.40	Foothill 0614.40
Students with a Job Closely Related to Their Field of Study	74%	91%	47%	47%	N/A	N/A
Median Annual Earnings for SWP Exiting Students	$47,419	$66,288	$22,618	$26,687	$23,400	N/A
Median Change in Earnings for SWP Exiting Students	23%	43%	41%	19%	88%	N/A
Exiting Students Who Attained the Living Wage	52%	64%	24%	24%	N/A	N/A

Source: Launchboard Strong Workforce Program Median of 2017 to 2020.

Skills, Certifications and Education

Table 9. Top Skills for Animation Occupations in Bay Region (Oct. 2021 – Sept. 2022)

Skill	Posting	Skill	Posting
Adobe Photoshop	3,838	Adobe Aftereffects	858
Adobe Indesign	3,149	Prototyping	798
Graphic Design	2,977	Process Design	796
Adobe Illustrator	2,791	Digital Design	787
Adobe Acrobat	2,539	Product Design	774
Adobe Creative Suite	2,498	Scheduling	697
Visual Design	1,656	Illustration	663
Typesetting	1,566	Vaccination	628
Project Management	1,534	Project Design	620
Art Direction	1,174	Interaction Design	619
Social Media	1,114	Customer Service	614
Animation	1,052	Packaging	554
Budgeting	950	Photography	498

Skill	Posting	Skill	Posting
Web Site Design	889	Creative Direction	478

Source: Burning Glass

Table 10. Certifications for Animation Occupations in Bay Region (Oct. 2021 – Sept. 2022)

Certification	Posting	Certification	Posting
Driver's License	126	Security Clearance	22
Certified Information Systems Security Professional (CISSP)	66	Project Management Professional (PMP)	22
Project Management Certification	52	CompTIA Security+	21
Certified Information Systems Auditor (CISA)	45	Cisco Certified Network Professional (CCNP)	21
Cisco Certified Network Associate (CCNA)	38	SANS/GIAC Certification	15
IT Infrastructure Library (ITIL) Certification	31	Registered Communications Distribution Designer (RCDD)	10
Cisco Certified Internetwork Expert (CCIE)	30	Certified Scrum Professional (CSP)	10
Certified Information Security Manager (CISM)	28		

Source: Burning Glass

Note: 94% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

Table 11. Education Requirements for Animation Occupations in Bay Region

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	372	7%
Associate's degree	185	3%
Bachelor's degree and higher	4,946	90%

Source: Burning Glass

Note: 42% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

Methodology

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

Sources

O*Net Online
Labor Insight/Jobs (Burning Glass)

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

Contacts

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Foothill College
Credit Program Narrative
Certificate of Achievement in Web Applications Development

Item 1. Program Goals and Objectives

The goal of the Certificate of Achievement in Web Applications Development is to prepare individuals to create web applications that meet the needs of clients and end users (such as individuals, institutions, businesses, and community organizations). Students successful in this program will be able to design, develop, and deploy websites that use modern technology and techniques. They will be able to create rich dynamic web applications that deliver similar features and functions previously associated with desktop applications through the use of modern libraries or frameworks. They will be able to create responsive webpages for devices of various screen sizes and contexts. They will be able to effectively utilize both client and server side programming for websites that are data-driven.

Program Learning Outcomes:

- Students will be able to ethically create rich web applications that deliver similar features and functions previously associated with desktop applications through the use of modern libraries or frameworks.
- Students will be able to ethically create webpages using modern versions of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript, and the Document Object Model (DOM), and demonstrate how they interact together within a web document using techniques that are responsive to differing screen sizes.
- Students will be able to ethically create data-driven web applications that work with client or server storage systems.
- Students will be able to work in production environments by effectively and ethically working and communicating with stakeholders such as the public, supervisors, developers, non-developers, and clients.
- Students will be able to ethically solve human clients' problems and improve workflow and processes.
- Students will be able to design and deploy software systems so they are reasonably usable, environmentally sustainable, universally accessible, and scalable.

Item 2. Catalog Description

The Certificate of Achievement in Web Applications Development certifies that the student can create responsive webpages and both client and server side programming for web applications that are data-driven.

Prerequisite skills: The ability to use a modern web browser.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (27 units)	C S 1A and C S 1B	Object-Oriented Programming Methodologies in Java Intermediate Software Design in Java	4.5 4.5	Year 1, Fall Year 1, Winter
	OR			
	C S 2A and C S 2B	Object-Oriented Programming Methodologies in C++ Intermediate Software Design in C++	4.5 4.5	Year 1, Fall Year 1, Winter
	OR			
	C S 3A and C S 3B	Object-Oriented Programming Methodologies in Python Intermediate Software Design in Python	4.5 4.5	Year 1, Fall Year 1, Winter
	C S 22A	JavaScript for Programmers	4.5	Year 1, Winter
	C S 77A	Advanced Web Application Development	4.5	Year 1, Spring
	C S 77B	Projects in Web Application Development	4.5	Year 2, Fall
	C S 84A	Database-Driven Web Application Development	4.5	Year 1, Winter

Note: Python has more relevance for web application development over C++.

TOTAL UNITS: 27 units

Proposed Sequence:
Year 1, Fall = 4.5 units
Year 1, Winter = 13.5 units
Year 1, Spring = 4.5 units
Year 2, Fall = 4.5 units
TOTAL UNITS: 27 units

Optional courses, not required for the certificate:
C S 30A Introduction to Linux*
C S 31A Introduction to Database Management Systems*
C S 40A Software Engineering Methodologies*
C S 50A Network Basics (CCNA)
C S 53A Cybersecurity Fundamentals
C S 63A Developing Applications for iOS
C S 64A Writing Apps for the Android

GID 33 Graphic Design Studio I
GID 34 Graphic Design Studio II
GID 55 User Experience (UI/UX) Design*
GID 57 Website Design & Development II*
GID 77 Advanced Website Design & Development
GID 78 Rapid Website Development
**course is an advisory for one of the core courses for the certificate.*

Item 4. Master Planning

The Certificate of Achievement in Web Applications Development will be another Foothill College program that will empower students to achieve their goals as members of the workforce, as future students, and as global citizens. By being educated to ethically develop modern web applications, certificate earners are expected to be able to find or create financially gainful opportunities. The certificate also includes two of the first three core courses of the Computer Science AS degree and AS-T degree, thus also enabling certificate earners to optionally continue their computer science studies and transfer to programs at the higher baccalaureate and master levels. The certificate prepares students to be global citizens by educating them to be ethical professionals who can work and communicate with the public, supervisors, developers, non-developers, end-users, and clients.

Item 5. Enrollment and Completer Projections

We expect an initial enrollment into C S 84A and C S 77A of about 30 students (mostly people from the set of 85 who have recently been successful in C S 22A, and thus likely already successful in C S 1A, C S 2A, or C S 3A). Assuming a 75% success rate, this translates into about 23 students enrolling into C S 77B and about 17 students successfully earning the certificate after the initial year. Based on occupational demand of about 15% over five years (in the August 2022 LMI report), we expect about 20 students successfully earning the certificate after year five.

		Year 1 (2020-21)		Year 2 (2021-22)	
Course #	**Course Title**	**Annual Sections**	**Annual Enrollment**	**Annual Sections**	**Annual Enrollment**
C S 1A	Object-Oriented Programming Methodologies in Java	17	596	14	449
C S 1B	Intermediate Software Design in Java	10	297	7	191
C S 2A	Object-Oriented Programming Methodologies in C++	12	457	12	382
C S 2B	Intermediate Software Design in C++	7	209	7	158
C S 3A	Object-Oriented Programming Methodologies in Python	21	834	21	774
C S 3B	Intermediate Software Design in Python	8	258	8	254
C S 22A	JavaScript for Programmers	4	129	4	106

C S 77A*	Advanced Web Application Development	N/A	N/A	N/A	N/A
C S 77B*	Projects in Web Application Development	N/A	N/A	N/A	N/A
C S 84A*	Database-Driven Web App Development	N/A	N/A	N/A	N/A

**C S 84A has not been offered during the past two years, and C S 77A & C S 77B are new courses for the 2022-23 year.*

Item 6. Place of Program in Curriculum/Similar Programs

The focus of the Certificate of Achievement in Web Applications Development on educating students to develop web applications, as opposed to developing websites, places it in the Computer Science Department. Web Developers and Graphics Designers develop and maintain websites (such as https://www.sears.com/) but Web Applications Developers make web applications (also known as web apps). Web apps are typically responsive single-page applications that work more like traditional desktop applications but in a web browser (such as Gmail: https://mail.google.com or Hubs: https://hubs.mozilla.com), and Web Applications Developers require more software engineering education than entry-level Web Developers and Graphics Designers.

The Graphic and Interactive Design Department has a Certificate of Achievement in Web Design (16 units). Two of the four courses for that certificate are listed as optional courses for this new Certificate of Achievement in Web Applications Development (GID 55 and GID 57).

The Computer Science Department is also proposing a Certificate of Achievement in Advanced Web Applications Development. This larger certificate (48.5 units) will give students more education in software engineering, Linux, and database management. Furthermore, GID 55 and GID 57 are restricted electives (support courses) for the advanced certificate, to give students more education in user experience, prototyping, and website design and development. These arrangements have been negotiated with, and are acceptable to, the Graphic and Interactive Design Department.

Item 7. Similar Programs at Other Colleges in Service Area

We at Foothill College are pioneers in developing such web app development certificates (and two new courses, C S 77A and C S 77B) in the California Community College system. However, the Computer and Information Science Department at the College of San Mateo (part of the San Mateo County Community College District) has an AS degree major in Web and Mobile Application Development. Our proposed Certificate of Achievement in Web Applications Development does not require mobile application development courses (such as for Apple iOS or Android devices).

Additional Information Required for State Submission:

TOP Code: 0707.10 - Computer Programming

Annual Completers: 17

Net Annual Labor Demand: 16,947

Faculty Workload: 0.750 FTEF

New Faculty Positions: 0.75 positions

New Equipment: $300 per year for a service like GitHub Enterprise (this cost will be shared with the advanced certificate program)

New/Remodeled Facilities: 0

Library Acquisitions: $798

Gainful Employment: Yes

Program Review Date: June, 2027

Distance Education: 50-99%

Foothill College
Credit Program Narrative
Certificate of Achievement in Advanced Web Applications Development

Item 1. Program Goals and Objectives

The goal of the Certificate of Achievement in Advanced Web Applications Development is to prepare individuals to create web applications that meet the needs of clients and end users (such as individuals, institutions, businesses, and community organizations). Students successful in this program will be able to design, develop, and deploy websites that use modern technology and techniques. They will be able to create rich dynamic web applications that deliver similar features and functions previously associated with desktop applications through the use of modern libraries or frameworks. They will be able to create responsive webpages for devices of various screen sizes and contexts. They will be able to effectively utilize both client and server side programming for websites that are data-driven.

Program Learning Outcomes:

- Students will be able to ethically create rich web applications that deliver similar features and functions previously associated with desktop applications through the use of modern libraries or frameworks.
- Students will be able to ethically create webpages using modern versions of Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), JavaScript, and the Document Object Model (DOM), and demonstrate how they interact together within a web document using techniques that are responsive to differing screen sizes.
- Students will be able to ethically create data-driven web applications that work with client or server storage systems.
- Students will be able to work in production environments by effectively and ethically working and communicating with stakeholders such as the public, supervisors, developers, non-developers, and clients.
- Students will be able to ethically solve human clients' problems and improve workflow and processes.
- Students will be able to design and deploy software systems so they are reasonably usable, environmentally sustainable, universally accessible, and scalable.

Item 2. Catalog Description

The Certificate of Achievement in Advanced Web Applications Development certifies that the student can create responsive webpages and both client and server side programming for web applications that are data-driven. Additionally, students who earn the certificate will gain skills in graphical interface design, operating systems, and database management.

Prerequisite skills: The ability to use a modern web browser.

Item 3. Program Requirements

Requirements	Course #	Title	Units	Sequence
Core Courses (40.5 units)	C S 1A and C S 1B	Object-Oriented Programming Methodologies in Java Intermediate Software Design in Java	4.5 4.5	Year 1, Fall Year 1, Winter
	OR			
	C S 2A and C S 2B	Object-Oriented Programming Methodologies in C++ Intermediate Software Design in C++	4.5 4.5	Year 1, Fall Year 1, Winter
	OR			
	C S 3A and C S 3B	Object-Oriented Programming Methodologies in Python Intermediate Software Design in Python	4.5 4.5	Year 1, Fall Year 1, Winter
	C S 22A	JavaScript for Programmers	4.5	Year 1, Winter
	C S 30A	Introduction to Linux	4.5	Year 1, Fall
	C S 31A	Introduction to Database Management Systems	4.5	Year 1, Winter
	C S 40A	Software Engineering Methodologies	4.5	Year 1, Spring
	C S 77A	Advanced Web Application Development	4.5	Year 2, Fall
	C S 77B	Projects in Web Application Development	4.5	Year 2, Spring
	C S 84A	Database-Driven Web Application Development	4.5	Year 1, Spring
Restricted Electives (8 units)	GID 55	User Experience (UI/UX) Design	4	Year 1, Spring
	GID 57	Website Design & Development II	4	Year 1, Fall

Note: Python has more relevance for web application development over C++.

TOTAL UNITS: 48.5 units

Proposed Sequence:
Year 1, Fall = 13 units
Year 1, Winter = 13.5 units
Year 1, Spring = 13 units

Year 2, Fall = 4.5 units
Year 2, Spring = 4.5 units
TOTAL UNITS: 48.5 units

Optional courses, not required for the certificate:
C S 49 Foundations of Computer Programming*
C S 50A Network Basics (CCNA)
C S 53A Cybersecurity Fundamentals
C S 63A Developing Applications for iOS
C S 64A Writing Apps for the Android
GID 33 Graphic Design Studio I
GID 34 Graphic Design Studio II
GID 56 Website Design*
GID 77 Advanced Website Design & Development
GID 78 Rapid Website Development
**course is an advisory for one of the core or support courses for the certificate.*

Item 4. Master Planning

The Certificate of Achievement in Advanced Web Applications Development will be another Foothill College program that will empower students to achieve their goals as members of the workforce, as future students, and as global citizens. By being educated to ethically develop modern web applications, certificate earners are expected to be able to find or create financially gainful opportunities. The certificate also includes two of the first three core courses of the Computer Science AS degree and AS-T degree, thus also enabling certificate earners to optionally continue their computer science studies and transfer to programs at the higher baccalaureate and master levels. The certificate prepares students to be global citizens by educating them to be ethical professionals who can work and communicate with the public, supervisors, developers, non-developers, end-users, and clients.

Item 5. Enrollment and Completer Projections

Based on 2020-21 success numbers in the courses recommended for the first quarter of the certificate (C S 1A: 310, C S 2A: 260, C S 3A: 554, C S 30A: 102, GID 57: 20) we expect about 27 students to pursue this certificate when it begins. Assuming a 75% success rate for each year in the 2-year certificate program, this translates into about 20 students completing the first year and about 15 students successfully earning the certificate after the initial two years. Based on occupational demand of about 15% over five years (in the August 2022 LMI report), we expect about 17 students successfully earning the certificate five years later.

		Year 1 (2020-21)		Year 2 (2021-22)	
Course #	**Course Title**	**Annual Sections**	**Annual Enrollment**	**Annual Sections**	**Annual Enrollment**
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C S 77A*	Advanced Web Application Development	N/A	N/A	N/A	N/A
C S 77B*	Projects in Web Application Development	N/A	N/A	N/A	N/A
C S 84A*	Database-Driven Web App Development	N/A	N/A	N/A	N/A
GID 55	User Experience (UI/UX) Design	5	193	4	139
GID 57	Website Design & Development II	4	114	1	25

**C S 40A & C S 84A have not been offered during the past two years, and C S 77A & C S 77B are new courses for the 2022-23 year.*

Item 6. Place of Program in Curriculum/Similar Programs

The focus of the Certificate of Achievement in Advanced Web Applications Development on educating students to develop web applications, as opposed to developing websites, places it in the Computer Science Department. Web Developers and Graphics Designers develop and maintain websites (such as https://www.sears.com/) but Web Applications Developers make web applications (also known as web apps). Web apps are typically responsive single-page applications that work more like traditional desktop applications but in a web browser (such as Gmail: https://mail.google.com or Hubs: https://hubs.mozilla.com), and Web Applications Developers require more software engineering education than entry-level Web Developers and Graphics Designers.

The Graphic and Interactive Design Department has a Certificate of Achievement in Web Design (16 units). Two of the four courses for that certificate are listed as restricted electives (support courses) for this new Certificate of Achievement in Advanced Web Applications Development (GID 55 and GID 57).

The Computer Science Department is also proposing a Certificate of Achievement in Web Applications Development. This smaller certificate (27 units) will give students the opportunity to seek employment earlier, while potentially earning the advanced certificate later. Furthermore,

GID 55 and GID 57 are optional electives for the certificate, to give students more education in user experience, prototyping, and website design and development. These arrangements have been negotiated with, and are acceptable to, the Graphic and Interactive Design Department.

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Additional Information Required for State Submission:

TOP Code: 0707.10 - Computer Programming

Annual Completers: 15

Net Annual Labor Demand: 16,947

Faculty Workload: 1.347 FTEF

New Faculty Positions: 1.38 positions

New Equipment: $300 per year for a service like GitHub Enterprise (this cost will be shared with the regular certificate program)

New/Remodeled Facilities: 0

Library Acquisitions: $798

Gainful Employment: Yes

Program Review Date: June, 2027

Distance Education: 50-99%

Labor Market Analysis for Program Recommendation Web Applications Development Occupations Foothill College

Prepared by the San Francisco Bay Center of Excellence for Labor Market Research
August 2022

Recommendation

Based on all available data, there appears to be an "undersupply" of Web Applications Development workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 16,947 students in the Bay region and 8,412 students in the Silicon Valley Sub-Region.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0707.10 Computer Programming programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

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

- **Computer Programmers (15-1251):** Create, modify, and test the code, forms, and script that allow computer applications to run. Work from specifications drawn up by software developers or other individuals. May assist software developers by analyzing user needs and designing software solutions. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 20%

- **Software Developers and Software Quality Assurance Analysts and Testers (15-1256):** Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 11%

- **Web Developers and Digital Interface Designers (15-1257):** Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes

"Multimedia Artists and Animators" (27-1014).
Entry-Level Educational Requirement: Associate's degree
Training Requirement: None
Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

Occupational Demand

Table 1. Employment Outlook for Web Applications Development Occupations in Bay Region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Computer Programmers	10,252	10,237	-15	0%	3,671	734	$43	$56
Software Developers and Software Quality Assurance Analysts and Testers	140,249	162,499	22,250	16%	75,729	15,146	$56	$72
Web Developers and Digital Interface Designers	11,548	12,950	1,402	12%	5,832	1,166	$30	$48
Total	**162,049**	**185,686**	**23,637**	**15%**	**85,231**	**17,046**		

Source: EMSI 2022.1

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

Table 2. Employment Outlook for Web Applications Development Occupations in Silicon Valley Sub-region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Computer Programmers	3,794	3,787	-7	-0%	1,325	265	$39	$51
Software Developers and Software Quality Assurance Analysts and Testers	74,735	85,370	10,634	14%	38,920	7,784	$58	$75
Web Developers and Digital Interface Designers	3,641	4,152	512	14%	1,891	378	$32	$49
Total	**82,170**	**93,309**	**11,139**	**14%**	**42,135**	**8,427**		

Source: EMSI 2022.1

Silicon Valley Sub-Region includes: Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region

Table 3. Number of Job Postings by Occupation for latest 12 months (Aug 2021 - Jul 2022)

Occupation	Bay Region	Silicon Valley
Software Developers, Applications	109,492	49,474
Web Developers	22,118	8,411
Software Quality Assurance Engineers and Testers	11,298	5,696
Computer Programmers	4,052	1,521
Software Developers, Systems Software	929	500

Source: Burning Glass

Table 4a. Top Job Titles for Web Applications Development Occupations for latest 12 months (Aug 2021 - Jul 2022) - Bay Region

Title	Bay	Title	Bay
Software Engineer	3,607	Ios Developer	591
Senior Software Engineer	3,068	Front End Engineer	557
Devops Engineer	1,436	UX Designer	537
Java Developer	1,005	Staff Software Engineer	524
Senior Devops Engineer	813	Front End Developer	524
Android Developer	707	Senior Backend Engineer	516
Backend Engineer	698	Principal Software Engineer	515
Full Stack Developer	670	Salesforce Developer	509
Software Developer	656	Python Developer	497

Source: Burning Glass

Table 4b. Top Job Titles for Web Applications Development Occupations for latest 12 months (Aug 2021 - Jul 2022) - Silicon Valley Sub-Region

Title	Silicon Valley	Title	Silicon Valley
Software Engineer	1,472	Frontend Developer	255
Senior Software Engineer	1,027	Senior Java Developer	247
Devops Engineer	587	Ios Developer	245
Java Developer	509	UX Designer	239
Python Developer	335	Full Stack Developer	236
Senior Devops Engineer	325	Software Engineer III	217
Android Developer	311	Staff Software Engineer	213
Backend Engineer	259	Design Verification Engineer	204
Software Developer	255	Embedded Software Engineer	203

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Web Applications Development Workers in Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2020)	Jobs in Industry (2025)	% Change (2020-25)	% Occupation Group in Industry (2020)
Computer Systems Design Services	302,806	360,230	19%	16%
Custom Computer Programming Services	292,349	350,646	20%	15%

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2020)	Jobs in Industry (2025)	% Change (2020-25)	% Occupation Group in Industry (2020)
Software Publishers	170,991	213,602	25%	9%
Corporate, Subsidiary, and Regional Managing Offices	85,575	92,102	8%	4%
Data Processing, Hosting, and Related Services	66,806	79,776	19%	4%
Internet Publishing and Broadcasting and Web Search Portals	43,477	58,566	35%	2%
Engineering Services	38,428	42,045	9%	2%
Other Computer Related Services	37,019	43,736	18%	2%
Temporary Help Services	33,560	40,998	22%	2%
Electronic Shopping and Mail-Order Houses	32,190	43,263	34%	2%

Source: EMSI 2022.1

Table 6. Top Employers Posting Web Applications Development Occupations in Bay Region and Silicon Valley Sub-Region (Aug 2021 - Jul 2022)

Employer	Bay	Employer	Silicon Valley
Amazon	3,903	Amazon	2,236
Apple Inc.	1,788	Apple Inc.	1,698
Google Inc.	1,637	Google Inc.	1,294
Walmart	956	Intel Corporation	835
Intel Corporation	843	Walmart	792
Capital One	789	Nividia Corporation	694
eBay	763	Palo Alto Networks	513
Nividia Corporation	695	Cisco Systems Incorporated	453
TATA Consultancy Services	674	Advanced Micro Devices	424
Facebook	667	Paypal	371
Lucid Motors	663	Rivian	355

Source: Burning Glass

Educational Supply

There are eight (8) community colleges in the Bay Region issuing 42 awards on average annually (last 3 years ending 2018-19) on TOP 0707.10 Computer Programming. In the Silicon Valley Sub-Region, there are four (4) community colleges that issued eight (8) awards on average annually (last 3 years) on this TOP code.

There are two (2) other CTE educational institutions in the Bay Region issuing 57 awards on average annually (last 3 years ending 2019-20) on TOP 0707.10 Computer Programming. There is one (1) other CTE educational institution in the Silicon Valley Sub-Region issuing seven (7) awards on average annually (last 3 years) on this TOP code.

Table 7a. Community College Awards on TOP 0707.10 Computer Programming in Bay Region

College	Subregion	Associate Degree	Award < 1 academic yr	Postsecondary awards	Total
Berkeley City College	East Bay	3	2	0	5
Cabrillo College	SC-Monterey	4	19	1	24
Canada College	Mid-Peninsula	0	4	0	4
Foothill College	Silicon Valley	0	1	0	1
Mission College	Silicon Valley	0	3	0	3
Ohlone College	East Bay	0	1	0	1
San Jose City College	Silicon Valley	0	1	1	2
West Valley College	Silicon Valley	0	1	1	2
Total		**7**	**32**	**3**	**42**

Source: Data Mart

Note: The annual average for awards is 2017-18 to 2019-20.

Table 7b. Other CTE Institutions Awards on TOP 0707.10 Computer Programming in Bay Region

College	Subregion	Associate Degree	Bachelor's degree	Total
Academy of Art University	Mid-Peninsula	6	44	50
Santa Clara University	Silicon Valley	0	7	7
Total		**6**	**51**	**57**

Note: The annual average for awards is 2017-18 to 2019-20.

Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 17,046 annual openings for the Web Applications Development occupational cluster and 99 annual (3-year average) awards for an annual undersupply of 16,947 students. In the Silicon Valley Sub-Region, there is also a gap with 8,427 annual openings and 15 annual (3-year average) awards for an annual undersupply of 8,412 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0707.10 Computer Programming

Metric Outcomes	Bay All CTE Programs	Foothill All CTE Programs	State 0707.10	Bay 0707.10	Silicon Valley 0707.10	Foothill 0707.10
Students with a Job Closely Related to Their Field of Study	74%	91%	65%	66%	63%	100%

Metric Outcomes	Bay All CTE Programs	Foothill All CTE Programs	State 0707.10	Bay 0707.10	Silicon Valley 0707.10	Foothill 0707.10
Median Annual Earnings for SWP Exiting Students	$47,419	$66,288	$39,896	$55,772	$58,498	$81,566
Median Change in Earnings for SWP Exiting Students	23%	43%	21%	20%	18%	21%
Exiting Students Who Attained the Living Wage	52%	64%	54%	55%	56%	71%

Source: Launchboard Strong Workforce Program Median of 2017 to 2020.

Skills, Certifications and Education

Table 9. Top Skills for Web Applications Development Occupations in Bay Region (Aug 2021 - Jul 2022)

Skill	Posting	Skill	Posting
JavaScript	10,855	Linux	3,262
Software Engineering	8,720	Scrum	3,040
Java	8,361	Ruby	3,031
Python	8,255	Ruby on Rails	2,976
Quality Assurance and Control	8,113	Adobe Photoshop	2,972
Software Development	7,184	AngularJS	2,877
SQL	5,900	Atlassian JIRA	2,849
React Javascript	4,821	Selenium	2,814
Git	4,516	Project Management	2,775
Front-end Development	4,500	HTML5	2,659
Web Development	4,088	Product Management	2,641
Web Application Development	3,915	Docker Software	2,633
Unit Testing	3,424	TypeScript	2,630
Debugging	3,310	Product Development	2,622

Source: Burning Glass

Table 10. Certifications for Web Applications Development Occupations in Bay Region (Aug 2021 - Jul 2022)

Certification	Posting	Certification	Posting
Driver's License	227	Cisco Certified Security Professional	56
Security Clearance	184	Six Sigma Certification	48
Project Management Certification	161	First Aid Cpr Aed	38

Certification	Posting	Certification	Posting
Certified Scrum Trainer (CST)	131	Certified Software Quality Engineer (CSQE)	36
Project Management Professional (PMP)	124	Certified Novell Administrator	36
Certified Salesforce Platform Developer	76	ISTQB Certified	32
Certified Quality Engineer (CQE)	74	Certified ScrumMaster (CSM)	32
American Society For Quality (ASQ) Certification	73	Certified Quality Auditor (CQA)	32
IT Infrastructure Library (ITIL) Certification	66	Cisco Certified Network Associate (CCNA)	30
Automation Certification	60	Certified Medical Assistant	28

Source: Burning Glass

Note: 96% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.

Table 11. Education Requirements for Web Applications Development Occupations in Bay Region

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	1,110	5%
Associate's degree	286	1%
Bachelor's degree and higher	21,169	94%

Source: Burning Glass

Note: 41% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

Methodology

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

Sources

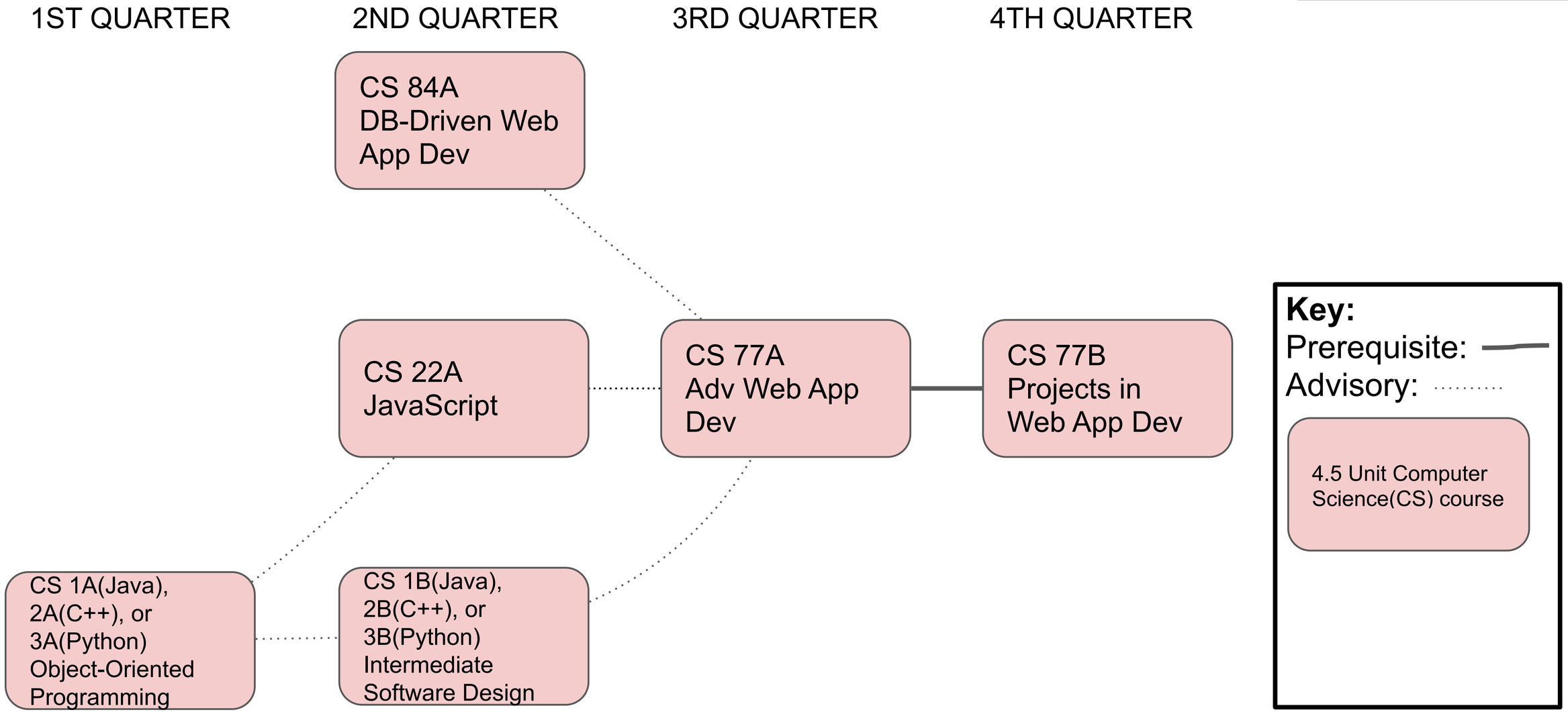
O*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor's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

Contacts

For more information, please contact:

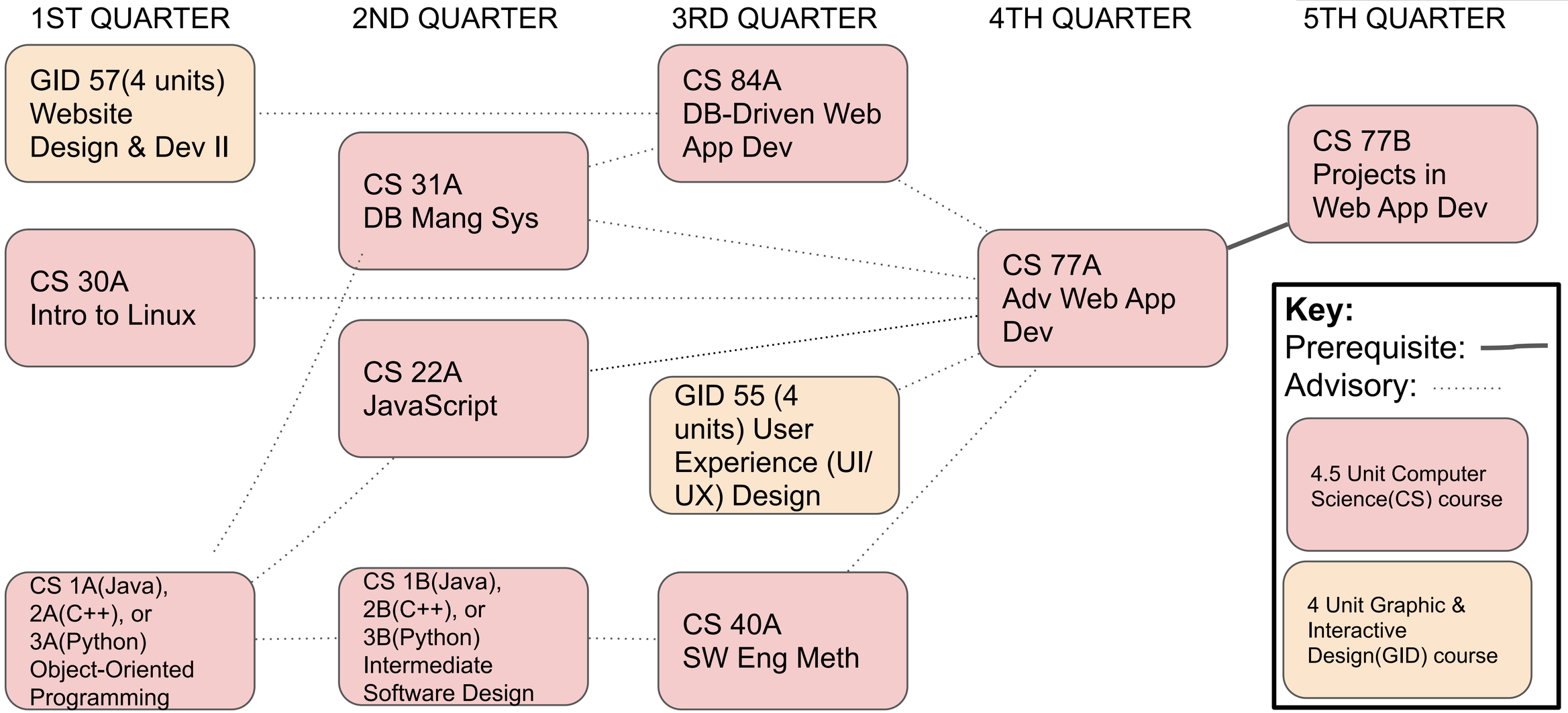
- Leila Jamoosian, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), leila@baccc.net
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544

Web Applications Development Certificate: 4 Qtrs, 27 Units*



***Note to students:** Above is a suggested pathway for completing the Web Applications Development Certificate of Achievement in 4 quarters. You should think of this course map as more of a guide. Please see a counselor or advisor to create an education plan that is customized to meet your needs. Python has more relevance for Web Application Development over C++.

Advanced Web Applications Development Certificate: 5 Qtrs, 48.5 Units*



***Note to students:** Above is a suggested pathway for completing the Web Applications Development Certificate of Achievement in 5 quarters. You should think of this course map as more of a guide. Please see a counselor or advisor to create an education plan that is customized to meet your needs. Python has more relevance for Web Application Development over C++.

ENGR F101A : ADVANCED MANUFACTURING

Proposal Type
New Course

Effective Term
Winter 2024

Subject
Engineering (ENGR)
Course Number
F101A

Department
Engineering (ENGR)

Division
Science Technology Engineering and Mathematics (1PS)

Units
5

Course Title
ADVANCED MANUFACTURING

Former ID

Cross Listed

Related Courses

Maximum Units
5

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
5

Weekly Lab Hours
0

Weekly Out of Class Hours
10

Special Hourly Notation

Total Contact Hours
60

Total Student Learning Hours
180

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

If a Foothill credit course is not part of a state-approved associate's degree, certificate of achievement, or the Foothill GE pattern, it is considered by the state to be a "Stand Alone Course." Per Title 5, local curriculum committees must review and approve proposed Stand Alone courses to ensure that they are consistent with credit course standards (§55002), the community college mission, and that there is sufficient need and resources for the course. To be compliant with state regulations, there must be a completed, approved Stand Alone form on file in the Office of Instruction. Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Are you requesting Stand Alone approval for the course on a temporary or permanent basis?

• Temporary means the course will be incorporated into a new degree or certificate that is not yet State approved.
• Permanent means there are no plans to add the course to a State approved degree or certificate, nor to the Foothill GE pattern.

Please select
Temporary

In this case, identify the degree/certificate to which the course will be added:
Certificate of Achievement in Semiconductor Technician

What is the specific timeline for program application/approval? (e.g., is your program application locally approved, or is it still in development and if so, what is your anticipated submission date?)
The program will be submitted for approval after the courses are created

The Curriculum Committee must evaluate this application based on the following criteria:

Criteria A. Appropriateness to Mission

The Foothill College Mission states: Believing a well-educated population is essential to sustaining and enhancing a democratic society, Foothill College offers programs and services that empower students to achieve their goals as members of the workforce, as future students, and as global citizens. We work to obtain equity in achievement of student outcomes for all California student populations, and are guided by our core values of honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. Foothill College offers associate degrees and certificates in multiple disciplines, and a baccalaureate degree in dental hygiene.

Please indicate how your course supports the Foothill College Mission:
Workforce/CTE

Criteria B. Need

A course may only be granted Stand Alone Approval if there is demonstrable need for the course in the college service area. Please provide evidence of the need or demand for your course, such as ASSIST documentation for transfer courses or Labor Market Information for workforce/CTE courses (if LMI is unavailable, advisory board minutes or employer surveys may be submitted). For basic skills courses, assessment-related data or information may be provided. Evidence may be provided in the box below and/or uploaded as an attachment.

Evidence

This course will be a part of the Semiconductor Technician apprenticeship, a certificate of achievement, and an AS in Semiconductor Engineering.

Attach evidence

Need/Justification
This course is important for industry and the Semiconductor Technician apprenticeship program and will be included in the certificate of achievement for the apprenticeship program.

Course Description
This course provides an understanding of industry technology and exposure to advanced manufacturing, pneumatics, electronics, mechatronics, and vacuum systems.

Course Prerequisites

Course Corequisites

Course Advisories

Course Objectives

The student will be able to:

1. Electronics
    1. Describe the basic electrical elements, such as power supplies, components of circuits, and basics of electrical conduction
    2. Explain electrical safety concerns for working with electrical systems
    3. Explain the terms, units, and qualitative properties of voltage, current, resistance, and power, as applied to DC and AC electrical circuits
    4. Use basic measurement tools and methods for voltage, current, and resistance measurements
    5. Identify symbols and connections for components using diagrams
    6. Perform wiring of control circuits working from diagrams
    7. Explain the basic operating principals of programmable logic controllers
    8. Troubleshoot electro-mechanical systems
    9. Understand safety techniques in an industrial environment
2. Chemical/Gas delivery
    1. Understand safety practices
    2. Understand possible chemical reactions
3. Mechatronics
    1. Describe motors and how they work
    2. Present an overview of programmable logic controllers (PLC)
    3. Explain control systems: Open and closed loops
    4. Identify concepts of electro-mechanical systems
    5. Demonstrate the use of various sensors to monitor clean room processes
    6. Troubleshoot electro-mechanical systems
4. Basic vacuum technology
    1. Understand gas kinetic theory
    2. Understand bulk behavior vs. molecular behavior
    3. Use equations to relate gas flow and pumpdown time
    4. Identify vacuum sealing surfaces and basic fittings
    5. Demonstrate ability to read vacuum gauges and different types of gauges
    6. Explain differences in type of vacuum pumps
    7. Understand the importance of leak detection
5. Advanced manufacturing practices
    1. Follow procedures and methods for using tools
    2. Follow procedures for reporting issues
    3. Identify steps in a procedure from diagrams
    4. Identify contact person for various issues
    5. Understand level of urgency needed in various situations

6. Communicate effectively in various clean room scenarios

Course Content

1. Electronics
    1. Circuit theory
    2. Circuit analysis
    3. Electrical safety concerns for people and equipment
    4. Power supplies
    5. Measurement tools and methods for voltage, current, and resistance measurements
    6. Diagrams
    7. Programmable logic controllers
    8. Troubleshooting
2. Chemical/Gas delivery
    1. Safety practices
    2. Chemical reactions
3. Mechatronics
    1. Motors
    2. Programmable logic controllers (PLC)
    3. Control systems: Open and closed loops
    4. Electro-mechanical systems
    5. Sensors
    6. Troubleshooting
4. Basic vacuum technology
    1. Gas kinetic theory
    2. Bulk behavior vs. molecular behavior
    3. Gas flow and pumpdown time equations
    4. Vacuum hardware
    5. Vacuum gauges
    6. Vacuum pumps
    7. Leak detection
5. Advanced manufacturing practices
    1. Procedures and methods for using tools
    2. Procedures for reporting issues
    3. Read and interpret diagrams
    4. Reporting procedures
    5. Effective communication

Lab Content

Not applicable.

Special Facilities and/or Equipment
None

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Written assignments
Oral presentations
Demonstration of hands-on skills

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture
Small group and large group discussion
Projects

Representative Text(s)

Author(s)	Title	Publication Date
Moore, Davis, and Coplan	Building Scientific Apparatus	2012

Please provide justification for any texts that are older than 5 years
This text is on its 4th edition, when the next edition is published, we will adopt it.

Other Materials

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

Reading may include instruction and maintenance manuals, diagrams and flow charts, and operating instructions.

Authorized Discipline(s):
Engineering

Faculty Service Area (FSA Code)
ENGINEERING

Taxonomy of Program Code (TOP Code)
*0945.00 - Industrial Systems Technology and Maintenance

Attach Historical Forms/Documents (if applicable)

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
None

Validation Date
5/24/23

Division Dean Only

Seat Count
35

Load
.111

FOAP Codes:

Fund Code
114000 - General Operating- Unrestricted

Org Code
125031 - Engineering

Account Code
1320

Program Code
094500 - Indust Syst Technol, Mainte

LINC F079A : INTRODUCTION TO IMMERSIVE MEDIA IN EDUCATION

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Learning in New Media Classrooms (LINC)
Course Number
F079A

Department
Learning in New Media Classrooms (LINC)

Division
Business and Social Sciences (1SS)

Units
2

Course Title
INTRODUCTION TO IMMERSIVE MEDIA IN EDUCATION

Former ID

Cross Listed

Related Courses

Maximum Units
2

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
2

Weekly Lab Hours
0

Weekly Out of Class Hours
4

Special Hourly Notation

Total Contact Hours
24

Total Student Learning Hours
72

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

If a Foothill credit course is not part of a state-approved associate's degree, certificate of achievement, or the Foothill GE pattern, it is considered by the state to be a "Stand Alone Course." Per Title 5, local curriculum committees must review and approve proposed Stand Alone courses to ensure that they are consistent with credit course standards (§55002), the community college mission, and that there is sufficient need and resources for the course. To be compliant with state regulations, there must be a completed, approved Stand Alone form on file in the Office of Instruction. Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Are you requesting Stand Alone approval for the course on a temporary or permanent basis?

• Temporary means the course will be incorporated into a new degree or certificate that is not yet State approved.
• Permanent means there are no plans to add the course to a State approved degree or certificate, nor to the Foothill GE pattern.

Please select
Temporary

In this case, identify the degree/certificate to which the course will be added:
Educational Immersive Media certificate of achievement

What is the specific timeline for program application/approval? (e.g., is your program application locally approved, or is it still in development and if so, what is your anticipated submission date?)
Program narrative has been developed is in currently going through college curriculum approval process.

The Curriculum Committee must evaluate this application based on the following criteria:

Criteria A. Appropriateness to Mission

The Foothill College Mission states: Believing a well-educated population is essential to sustaining and enhancing a democratic society, Foothill College offers programs and services that empower students to achieve their goals as members of the workforce, as future students, and as global citizens. We work to obtain equity in achievement of student outcomes for all California student populations, and are guided by our core values of honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. Foothill College offers associate degrees and certificates in multiple disciplines, and a baccalaureate degree in dental hygiene.

Please indicate how your course supports the Foothill College Mission:
Workforce/CTE

Criteria B. Need

A course may only be granted Stand Alone Approval if there is demonstrable need for the course in the college service area. Please provide evidence of the need or demand for your course, such as ASSIST documentation for transfer courses or Labor Market Information for workforce/CTE courses (if LMI is unavailable, advisory board minutes or employer surveys may be submitted). For basic skills courses, assessment-related data or information may be provided. Evidence may be provided in the box below and/or uploaded as an attachment.

Evidence

Given the primary audience for LINC classes is comprised of teachers in elementary, middle, and secondary classrooms, the labor market analysis data focuses on this occupational sector.

The Employment Development Department for the state of California shows projected growth change of 20.6% and 22.4% in teacher employment in the San Jose and San Mateo areas by 2026. (Source: https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html)

In the 22-23 school year, school districts in Santa Clara county hired 1255 new teachers, while districts in San Mateo county hired 538. These new teachers are joining an existing workforce of 11,885 teachers in Santa Clara County and 4,608 in San Mateo County (Source:https://www.cde.ca.gov/ds/ad/dataquest.asp). New teachers will need the educational technology knowledge and skills the KCI offers through LINC classes and existing teachers will need to refresh or upgrade as technological advances occur regularly.

Specifically, the projected employment outlook for Educational Immersive Media Occupations in the Bay Area shows a 6% increase over 5 years and an 11% increase over 5 years in the Silicon Valley subset. (Source: LMI Report attached.)

Attach evidence
LMI_Educational Immersive Media_January 2023.pdf

Need/Justification
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 includes 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.

Course Description
Intended for educators at all levels, this course provides an overview of the emerging field of immersive media (virtual reality, augmented reality, and mixed reality) and examines its current and potential future impact on education. Students explore and evaluate a variety of educational applications and experiences in both virtual and augmented reality, and develop plans for using immersive media as an instructional tool.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Basic computer skills and knowledge of Macintosh or Windows operating systems; basic skills and knowledge using web browsers, email, bookmarking, searching, and downloading; this course uses VR headsets and hand controllers as part of instruction.

Course Objectives

The student will be able to:

1. Understand the basic concepts and technologies of immersive media, including virtual reality, augmented reality, and mixed reality, and their applications in education

2. Critically evaluate and analyze a variety of educational applications and experiences in immersive media
3. Develop plans for using immersive media as an instructional tool
4. Create and implement immersive media projects in an educational setting

Course Content

1. Concepts and technologies
    1. Definition of immersive media and its various types
    2. Overview of immersive media technologies, such as virtual reality, augmented reality, and mixed reality
    3. The role of immersive media in education
    4. Software and hardware specifications and set-up
2. Educational applications
    1. Exploration of educational applications and experiences
    2. Educational technology evaluation methods: SAMR, TPACK
    3. Evaluation of immersive media applications
    4. Benefits and limitations for instruction
3. Immersive media project design
    1. Planning immersive media projects for educational purposes
    2. Best practices in immersive media project design
    3. Implementation strategies in an educational setting
4. Immersive media project development
    1. Immersive media curation tools and techniques
    2. Hands-on experience creating immersive media projects
    3. Strategies for incorporating immersive media projects into instructional practice
5. Evaluation and reflection
    1. Assessment methods for project impact on student learning outcomes
    2. Peer review and evaluation of project effectiveness
    3. Project revisions and updated implementation plans

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. VR laboratories equipped with computers or laptops with internet access and VR headsets.
2. When taught via the internet: Students must have current email accounts and ongoing access to computers with web browsing capability and internet access. Students will need VR headsets for this course. Headsets can be borrowed at no cost if needed.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Developing an educational immersive media project
Presenting the project to peers for feedback
Making constructive contributions to class discussions
Providing peer reviews to other class members showing their own understanding of the class content

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete activities
Facilitated discussions of live presentations, readings, or video presentations
Student presentations in small group and whole class situations

Representative Text(s)

Author(s)	Title	Publication Date
Daniela, Linda	New Perspectives on Virtual and Augmented Reality (Perspectives on Education in the Digital Age)	2022

Please provide justification for any texts that are older than 5 years

Other Materials

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments include analysis of texts, selected examples, and student projects
2. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects
3. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

Authorized Discipline(s):
Instructional Design/Technology

Faculty Service Area (FSA Code)
EDUCATION

Taxonomy of Program Code (TOP Code)
*0860.00 - Educational Technology

Attach Historical Forms/Documents (if applicable)

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU

Validation Date
4/10/23

Division Dean Only

Seat Count

Load

FOAP Codes:

Fund Code

Org Code

Account Code
1320

Program Code

LINC F079B : SOCIO-EMOTIONAL LEARNING THROUGH IMMERSIVE MEDIA

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Learning in New Media Classrooms (LINC)
Course Number
F079B

Department
Learning in New Media Classrooms (LINC)

Division
Business and Social Sciences (1SS)

Units
2

Course Title
SOCIO-EMOTIONAL LEARNING THROUGH IMMERSIVE MEDIA

Former ID

Cross Listed

Related Courses

Maximum Units
2

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
2

Weekly Lab Hours
0

Weekly Out of Class Hours
4

Special Hourly Notation

Total Contact Hours
24

Total Student Learning Hours
72

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

If a Foothill credit course is not part of a state-approved associate's degree, certificate of achievement, or the Foothill GE pattern, it is considered by the state to be a "Stand Alone Course." Per Title 5, local curriculum committees must review and approve proposed Stand Alone courses to ensure that they are consistent with credit course standards (§55002), the community college mission, and that there is sufficient need and resources for the course. To be compliant with state regulations, there must be a completed, approved Stand Alone form on file in the Office of Instruction. Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Are you requesting Stand Alone approval for the course on a temporary or permanent basis?

• Temporary means the course will be incorporated into a new degree or certificate that is not yet State approved.
• Permanent means there are no plans to add the course to a State approved degree or certificate, nor to the Foothill GE pattern.

Please select
Temporary

In this case, identify the degree/certificate to which the course will be added:
Certificate of Achievement in Educational Immersive Media

What is the specific timeline for program application/approval? (e.g., is your program application locally approved, or is it still in development and if so, what is your anticipated submission date?)
Program narrative has been developed and is currently going through college curriculum approval process.

The Curriculum Committee must evaluate this application based on the following criteria:

Criteria A. Appropriateness to Mission

The Foothill College Mission states: Believing a well-educated population is essential to sustaining and enhancing a democratic society, Foothill College offers programs and services that empower students to achieve their goals as members of the workforce, as future students, and as global citizens. We work to obtain equity in achievement of student outcomes for all California student populations, and are guided by our core values of honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. Foothill College offers associate degrees and certificates in multiple disciplines, and a baccalaureate degree in dental hygiene.

Please indicate how your course supports the Foothill College Mission:
Workforce/CTE

Criteria B. Need

A course may only be granted Stand Alone Approval if there is demonstrable need for the course in the college service area. Please provide evidence of the need or demand for your course, such as ASSIST documentation for transfer courses or Labor Market Information for workforce/CTE courses (if LMI is unavailable, advisory board minutes or employer surveys may be submitted). For basic skills courses, assessment-related data or information may be provided. Evidence may be provided in the box below and/or uploaded as an attachment.

Evidence

Given the primary audience for LINC classes is comprised of teachers in elementary, middle, and secondary classrooms, the labor market analysis data focuses on this occupational sector. The Employment Development Department for the state of California shows projected growth change of 20.6% and 22.4% in teacher employment in the San Jose and San Mateo areas by 2026. (Source: https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html)

In the 22-23 school year, school districts in Santa Clara county hired 1255 new teachers, while districts in San Mateo county hired 538. These new teachers are joining an existing workforce of 11,885 teachers in Santa Clara County and 4,608 in San Mateo County (Source:

https://www.cde.ca.gov/ds/ad/dataquest.asp). New teachers will need the educational technology knowledge and skills the KCI offers through LINC classes and existing teachers will need to refresh or upgrade as technological advances occur regularly.

Specifically, the projected employment outlook for Educational Immersive Media Occupations in the Bay Area shows a 6% increase over 5 years and an 11% increase over 5 years in the Silicon Valley subset. (Source: LMI Report attached.)

Attach evidence
LMI_Educational Immersive Media_January 2023.pdf

Need/Justification
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 includes 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.

Course Description
Intended for educators, this course examines the ways in which immersive media technologies (virtual reality, augmented reality, and mixed reality) can support socio-emotional learning (SEL) across subject areas in K-12 classrooms. Special emphasis is placed on the ways in which immersive media can heighten empathy through experiential learning. Students explore and evaluate applications related to mindfulness, empathy, and social interaction, and develop an immersive media project that supports socio-emotional learning.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Basic computer skills and knowledge of Macintosh or Windows operating systems; basic skills and knowledge using web browsers, email, bookmarking, searching, and downloading; this course uses VR headsets and hand controllers as part of instruction.

Course Objectives

The student will be able to:

1. Identify the ways in which immersive media technologies can support socio-emotional learning (SEL) in K-12 classrooms
2. Demonstrate how immersive media can heighten empathy through experiential learning

3. Evaluate and analyze a variety of immersive media applications that support mindfulness, empathy, and social interaction in the classroom
4. Create a plan for incorporating immersive media SEL applications into teaching practice
5. Design and develop an immersive media project that supports socio-emotional learning
6. Share and evaluate peer immersive media projects and make revisions based on feedback

Course Content

1. Immersive media and SEL
    1. Educational importance for socio-emotional learning
    2. Immersive media technologies that support SEL
    3. Examination of immersive media projects through an SEL lens
2. Empathy through experiential learning
    1. Experiential learning and immersive media
    2. Empathy and learning theories
    3. Exploration of empathy-promoting technologies
    4. Empathy walks
3. Analyzing immersive media applications for SEL
    1. SEL Frameworks and CASEL Standards
    2. Critical evaluation of immersive media applications for SEL
    3. Potential benefits and limitations of using immersive media for SEL
4. Incorporating elements
    1. Incorporating immersive media, SEL, and teaching practice
    2. Best practices
    3. Potential challenges and strategies
5. Project design
    1. Planning immersive media projects for SEL
    2. Designing an immersive media project that supports socio-emotional learning
    3. Hands-on experience creating an immersive media project that supports SEL
6. Evaluation and revision
    1. Sharing and evaluating peer immersive media projects
    2. Feedback and revision based on evaluation
    3. Reflection on the effectiveness of immersive media projects for SEL and strategies for future project design and implementation

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. VR laboratories equipped with computers or laptops with internet access and VR headsets.
2. When taught via the internet: Students must have current email accounts and ongoing access to computers with web browsing capability and internet access. Students will need VR headsets for this course. Headsets can be borrowed at no cost if needed.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Developing an educational immersive media SEL project
Presenting the project to peers for feedback
Making constructive contributions to class discussions
Providing peer reviews to other class members showing their own understanding of the class content

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete an activity
Facilitated discussions of live presentations, readings, or collaborative activities in virtual learning environments
Student presentations in small group and whole class situations

Representative Text(s)

Author(s)	Title	Publication Date
Mihailidis, Paul, Sangita Shresthova, and Megan Fromm	Transformative Media Pedagogies	2021

Please provide justification for any texts that are older than 5 years

Other Materials

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments include analysis of texts, selected examples, and student projects
2. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects
3. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

Authorized Discipline(s):
Instructional Design/Technology

Faculty Service Area (FSA Code)
EDUCATION

Taxonomy of Program Code (TOP Code)
*0860.00 - Educational Technology

Attach Historical Forms/Documents (if applicable)

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU

Validation Date
4/10/23

Division Dean Only

Seat Count

Load

FOAP Codes:

Fund Code

Org Code

Account Code
1320

Program Code

LINC F079C : EDUCATIONAL EXPLORATION THROUGH IMMERSIVE MEDIA

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Learning in New Media Classrooms (LINC)
Course Number
F079C

Department
Learning in New Media Classrooms (LINC)

Division
Business and Social Sciences (1SS)

Units
2

Course Title
EDUCATIONAL EXPLORATION THROUGH IMMERSIVE MEDIA

Former ID

Cross Listed

Related Courses

Maximum Units
2

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
2

Weekly Lab Hours
0

Weekly Out of Class Hours
4

Special Hourly Notation

Total Contact Hours
24

Total Student Learning Hours
72

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

If a Foothill credit course is not part of a state-approved associate's degree, certificate of achievement, or the Foothill GE pattern, it is considered by the state to be a "Stand Alone Course." Per Title 5, local curriculum committees must review and approve proposed Stand Alone courses to ensure that they are consistent with credit course standards (§55002), the community college mission, and that there is sufficient need and resources for the course. To be compliant with state regulations, there must be a completed, approved Stand Alone form on file in the Office of Instruction. Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Are you requesting Stand Alone approval for the course on a temporary or permanent basis?

• Temporary means the course will be incorporated into a new degree or certificate that is not yet State approved.
• Permanent means there are no plans to add the course to a State approved degree or certificate, nor to the Foothill GE pattern.

Please select
Temporary

In this case, identify the degree/certificate to which the course will be added:
Certificate of Achievement in Educational Immersive Media

What is the specific timeline for program application/approval? (e.g., is your program application locally approved, or is it still in development and if so, what is your anticipated submission date?)
Program narrative has been developed and is currently going through college curriculum approval process.

The Curriculum Committee must evaluate this application based on the following criteria:

Criteria A. Appropriateness to Mission

The Foothill College Mission states: Believing a well-educated population is essential to sustaining and enhancing a democratic society, Foothill College offers programs and services that empower students to achieve their goals as members of the workforce, as future students, and as global citizens. We work to obtain equity in achievement of student outcomes for all California student populations, and are guided by our core values of honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. Foothill College offers associate degrees and certificates in multiple disciplines, and a baccalaureate degree in dental hygiene.

Please indicate how your course supports the Foothill College Mission:
Workforce/CTE

Criteria B. Need

A course may only be granted Stand Alone Approval if there is demonstrable need for the course in the college service area. Please provide evidence of the need or demand for your course, such as ASSIST documentation for transfer courses or Labor Market Information for workforce/CTE courses (if LMI is unavailable, advisory board minutes or employer surveys may be submitted). For basic skills courses, assessment-related data or information may be provided. Evidence may be provided in the box below and/or uploaded as an attachment.

Evidence

Given the primary audience for LINC classes is comprised of teachers in elementary, middle, and secondary classrooms, the labor market analysis data focuses on this occupational sector. The Employment Development Department for the state of California shows projected growth change of 20.6% and 22.4% in teacher employment in the San Jose and San Mateo areas by 2026. (Source: https://www.labormarketinfo.edd.ca.gov/data/employment-projections.html)

In the 22-23 school year, school districts in Santa Clara county hired 1255 new teachers, while districts in San Mateo county hired 538. These new teachers are joining an existing workforce of 11,885 teachers in Santa Clara County and 4,608 in San Mateo County

(Source:https://www.cde.ca.gov/ds/ad/dataquest.asp). New teachers will need the educational technology knowledge and skills the KCI offers through LINC classes and existing teachers will need to refresh or upgrade as technological advances occur regularly.

Specifically, the projected employment outlook for Educational Immersive Media Occupations in the Bay Area shows a 6% increase over 5 years and an 11% increase over 5 years in the Silicon Valley subset. (Source: LMI Report attached.)

Attach evidence
LMI_Educational Immersive Media_January 2023.pdf

Need/Justification
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 includes 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.

Course Description
Intended for educators at all levels, this course examines the ways in which immersive media (virtual reality, augmented reality, and mixed reality) provides unique opportunities for educational exploration. With an emphasis on historical, geographical, and scientific topics, students explore and evaluate a variety of educational applications and experiences, and design and develop their own educational tours using immersive media.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Basic computer skills and knowledge of Macintosh or Windows operating systems; basic skills and knowledge using web browsers, email, bookmarking, searching, and downloading; this course uses VR headsets and hand controllers as part of instruction.

Course Objectives

The student will be able to:

1. Identify opportunities for educational exploration provided by immersive media technologies
2. Evaluate and analyze a variety of educational applications and experiences that use immersive media to explore historical, geographical, and scientific topics
3. Demonstrate and explain the potential of immersive media technologies to enhance the educational experience

4. Design and develop standards-based educational tours using immersive media technologies
5. Share immersive media projects with others for feedback and revision

Course Content

1. Immersive media for educational exploration
    1. Definition of immersive media and its various types
    2. Overview of immersive media technologies that support educational exploration
    3. Examples of educational applications and experiences that use immersive media for exploration
2. Analysis of applications
    1. Exploration of applications by subject
        1. Geographical
        2. Historical
        3. Scientific
    2. Evaluation and analysis using pedagogical frameworks and curricular standards
    3. Educational project examples and case studies
    4. Assessing the educational impact of immersive media experiences
    5. Potential benefits and limitations of applications and technologies
3. Standards-based educational tours
    1. Tour building software and hardware
    2. 360 photography and curation
    3. Best practices for interactivity and educational content integration
    4. Sharing and formatting for different interfaces and technologies
        1. Virtual reality
        2. Augmented reality
        3. Web browser
        4. Mobile device
4. Evaluation and revision
    1. Project sharing and iterative testing for feedback and revision
    2. Revision of immersive media projects based on feedback
    3. Plans for integration of projects into educational curriculum

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. VR laboratories equipped with computers or laptops with internet access and VR headsets.

2. When taught via the internet: Students must have current email accounts and ongoing access to computers with web browsing capability and internet access. Students will need VR headsets for this course. Headsets can be borrowed at no cost if needed.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Developing a standards-based immersive media educational tour project
Presenting the project to peers for feedback
Making constructive contributions to class discussions
Providing peer reviews to other class members showing their own understanding of the class content

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete an activity
Facilitated discussions of live presentations, readings, or collaborative activities in virtual learning environments
Student presentations in small group and whole class situations

Representative Text(s)

Author(s)	Title	Publication Date
Bernardou, Agiatis, and Anna Maria Droumpouki	Difficult Heritage and Immersive Experiences	2022

Please provide justification for any texts that are older than 5 years

Other Materials

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments include analysis of texts, selected examples, and student projects
2. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects
3. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

Authorized Discipline(s):
Instructional Design/Technology

Faculty Service Area (FSA Code)
EDUCATION

Taxonomy of Program Code (TOP Code)
*0860.00 - Educational Technology

Attach Historical Forms/Documents (if applicable)

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU

Validation Date
4/10/23

Division Dean Only

Seat Count

Load

FOAP Codes:

Fund Code

Org Code

Account Code
1320

Program Code

LINC F079D : COLLABORATION IN VIRTUAL EDUCATIONAL ENVIRONMENTS

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Learning in New Media Classrooms (LINC)
Course Number
F079D

Department
Learning in New Media Classrooms (LINC)

Division
Business and Social Sciences (1SS)

Units
2

Course Title
COLLABORATION IN VIRTUAL EDUCATIONAL ENVIRONMENTS

Former ID

Cross Listed

Related Courses

Maximum Units
2

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
2

Weekly Lab Hours
0

Weekly Out of Class Hours
4

Special Hourly Notation

Total Contact Hours
24

Total Student Learning Hours
72

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

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Please select
Temporary

In this case, identify the degree/certificate to which the course will be added:
Certificate of Achievement in Educational Immersive Media

What is the specific timeline for program application/approval? (e.g., is your program application locally approved, or is it still in development and if so, what is your anticipated submission date?)
Program narrative has been developed and is currently going through college curriculum approval process.

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Please indicate how your course supports the Foothill College Mission:
Workforce/CTE

Criteria B. Need

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Evidence

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(Source:https://www.cde.ca.gov/ds/ad/dataquest.asp). New teachers will need the educational technology knowledge and skills the KCI offers through LINC classes and existing teachers will need to refresh or upgrade as technological advances occur regularly.

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Attach evidence
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Need/Justification
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Course Description
Intended for educators and industry professionals, this course examines the ways in which immersive media technologies (virtual reality, augmented reality, and mixed reality) allow for communication and collaboration within virtual environments. Students explore and evaluate a variety of emerging collaborative environments in virtual and mixed reality, analyzing their potential according to educational frameworks. Additionally, students use immersive media to collaborate on the design and development of an interactive virtual educational environment.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Basic computer skills and knowledge of Macintosh or Windows operating systems; basic skills and knowledge using web browsers, email, bookmarking, searching, and downloading; this course uses VR headsets and hand controllers as part of instruction.

Course Objectives

The student will be able to:

1. Demonstrate the ways in which immersive media technologies support communication and collaboration within virtual environments
2. Identify advantages and limitations of using immersive media technologies for collaborative projects

3. Critically evaluate a variety of emerging collaborative environments in virtual and mixed reality, and analyze their potential for use in educational settings
4. Use immersive media technologies to collaborate on the design and development of an interactive virtual educational environment
5. Apply educational frameworks to evaluate and analyze the effectiveness of virtual and mixed reality collaborative environments in supporting educational outcomes

Course Content

1. Collaboration in immersive virtual environments
    1. Definition of collaborative virtual environments
    2. Immersive media technologies that support collaboration
    3. Types of virtual communication and collaboration
2. Advantages and limitations
    1. Advantages to collaboration
    2. Limitations of collaboration
    3. Impact of immersive media on collaboration and communication
    4. Best practices for using immersive media for collaborative projects
    5. Inclusivity and accessibility considerations
3. Exploration and evaluation
    1. Emerging collaborative environments in virtual and mixed reality
    2. Evaluation and analysis of environments for educational settings
    3. Application of education technology frameworks within virtual environments
4. Design and development
    1. Selecting applications and environment templates
    2. Curating and developing assets
    3. Creative collaboration within virtual spaces
    4. Hands-on experience creating a virtual educational environment
5. Sharing, revision, and feedback
    1. Sharing and exploring peer created environments
    2. Cross-platform testing and evaluation
    3. Feedback and revision
    4. Integrating projects and environments into educational curriculums

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. When offered on/off campus: Lecture room equipped with projector, whiteboard, and a demonstration computer connected online. VR laboratories equipped with computers or laptops with internet access and VR headsets.
2. When taught via the internet: Students must have current email accounts and ongoing

access to computers with web browsing capability and internet access. Students will need VR headsets for this course. Headsets can be borrowed at no cost if needed.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Developing a collaborative immersive media project
Presenting the project to peers for feedback
Making constructive contributions to class discussions
Providing peer reviews to other class members showing their own understanding of the class content

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations delivered in student-centered learning style, during which students take notes, follow demonstrations, or complete an activity
Facilitated discussions of live presentations, readings, or collaborative activities in virtual learning environments
Student presentations in small group and whole class situations

Representative Text(s)

Author(s)	Title	Publication Date
Stevens, Renee	Designing Immersive 3D Experiences: A Designer's Guide to Creating Realistic 3D Experiences for Extended Reality	2021

Please provide justification for any texts that are older than 5 years

Other Materials

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading assignments include analysis of texts, selected examples, and student projects
2. Writing assignments include a course project and multiple developmental projects, reflections, discussion responses, and peer feedback on projects
3. Outside assignments include project planning and development, participation in online peer collaboration activities, and project development through an iterative process

When taught online, these methods may take the form of multimedia and web-based presentations. Assignments will be submitted online as well.

Authorized Discipline(s):
Instructional Design/Technology

Faculty Service Area (FSA Code)
EDUCATION

Taxonomy of Program Code (TOP Code)
*0860.00 - Educational Technology

Attach Historical Forms/Documents (if applicable)

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU

Validation Date
4/10/23

Division Dean Only

Seat Count

Load

FOAP Codes:

Fund Code

Org Code

Account Code
1320

Program Code

Labor Market Information Report
Educational Immersive Media Occupations
Foothill College

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

January 2023

Recommendation

Based on all available data, there appears to be an "undersupply" of Educational Immersive Media workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara county). There is a projected annual gap of about 2,056 students in the Bay region and 636 students in the Silicon Valley Sub-Region.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0860.00 Educational Technology programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

This report profiles Educational Immersive Media Occupations in the 12 county Bay region and in the Silicon Valley sub-region for an Educational Immersive Media (Virtual/Augmented Reality) certificate at Foothill College.

Labor market information (LMI) is not available at the eight-digit SOC Code level for Distance Learning Coordinators (11-9039.01), therefore, the data shown in Tables 1 and 2 is for Education Administrators, All Other (at the six digit SOC level) and likely overstates demand for Distance Learning Coordinators.

- **Training and Development Managers (11-3131):** Plan, direct, or coordinate the training and development activities and staff of an organization.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 21%

- **Education Administrators, All Other (11-9039):** All education administrators not listed separately.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 12%

- **Training and Development Specialists (13-1151):** Design and conduct training and development programs to improve individual and organizational performance. May analyze training needs.
  Entry-Level Educational Requirement: Bachelor's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 32%

- **Instructional Coordinators (25-9031):** Develop instructional material, coordinate educational content, and incorporate current technology in specialized fields that provide guidelines to educators and instructors for developing curricula and conducting courses. Includes educational consultants and specialists, and instructional material directors.
  Entry-Level Educational Requirement: Master's degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 13%

Occupational Demand

Table 1. Employment Outlook for Educational Immersive Media Occupations in Bay Region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earnin g	Median Hourly Wage
Training and Development Managers	2,151	2,168	17	1%	1,034	207	$57	$76
Education Administrators, All Other	4,045	4,931	886	22%	2,677	535	$36	$47
Training and Development Specialists	8,810	9,185	375	4%	4,767	953	$28	$39
Instructional Coordinators	4,360	4,334	-26	-1%	2,283	457	$27	$36
Total	**19,366**	**20,618**	**1,252**	**6%**	**10,761**	**2,152**		

Source: EMSI 2022.3

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

Table 2. Employment Outlook for Educational Immersive Media Occupations in Silicon Valley Sub-region

Occupation	2020 Jobs	2025 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Training and Development Managers	621	646	24	4%	303	61	$62	$79
Education Administrators, All Other	1,177	1,738	560	48%	1,130	226	$42	$48
Training and Development Specialists	2,382	2,310	-73	-3%	1,199	240	$30	$43
Instructional Coordinators	1,142	1,197	55	5%	631	126	$29	$37
Total	**5,323**	**5,890**	**567**	**11%**	**3,263**	**653**		

Source: EMSI 2022.3

Silicon Valley Sub-Region includes: Santa Clara County

Job Postings in Bay Region and Silicon Valley Sub-Region

Table 3. Number of Job Postings by Occupation for 12 months (Nov. 2021 – Oct. 2022)

Occupation	Bay Region	Silicon Valley
Training and Development Specialists	2,880	833
Training and Development Managers	1,221	258
Instructional Coordinators	668	161
Education Administrators, All Other	8	2

Source: Burning Glass

Table 4a. Top Job Titles for Educational Immersive Media Occupations for 12 months (Nov. 2021 – Oct. 2022) Bay Region

Title	Bay	Title	Bay
Training Coordinator	125	Capabilities Development Specialist	41
Director of Staff Development	115	Director of Staff Development	35
Education Coordinator	105	Program Coordinator, Senior Workforce Development	32
Training Specialist	93	Technical Trainer	32
Safety And Training Manager	85	Director, Talent Management	29
Trainer	80	Engagement Trainer	29
Training Manager	70	Talent Development Coordinator	29
Supervisor And Training	61	Supervisor And Training - Walmart Stores	25
Professional Development Trainer	45	Learning Specialist	24

Source: Burning Glass

Table 4b. Top Job Titles for Educational Immersive Media Occupations for 12 months (Nov. 2021 – Oct. 2022) Silicon Valley Sub-Region

Title	Silicon Valley	Title	Silicon Valley
Training Coordinator	42	Team Member Trainer	12
Education Coordinator	32	Training Coordinator For Operations	12
Trainer	24	Engagement Trainer	11
Training Specialist	23	Developmental Specialist	9
Director Of Staff Development	22	Director Of Staff Development Dsd	9
Training Coordinator II	18	Technical Trainer	9
Training Manager	16	Bakery Training Specialist	8

Title	Bay	Title	Bay
Supervisor And Training	13	Behavior Technician Bt With Paid Training	7
Talent Development Coordinator	13	Center Director In Training	7

Source: Burning Glass

Industry Concentration

Table 5. Industries hiring Educational Immersive Media Workers in Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2020)	Jobs in Industry (2025)	% Change (2020-25)	% Occupation Group in Industry (2020)
Elementary and Secondary Schools (Local Government)	1,410	1,519	8%	8%
Colleges, Universities, and Professional Schools	1,114	1,400	26%	7%
Educational Support Services	736	906	23%	4%
Elementary and Secondary Schools	643	743	16%	4%
Corporate, Subsidiary, and Regional Managing Offices	677	588	-13%	3%
Custom Computer Programming Services	664	733	10%	3%
Colleges, Universities, and Professional Schools (State Government)	685	558	-19%	3%
Software Publishers	551	595	8%	3%
Local Government, Excluding Education and Hospitals	521	535	3%	3%
Internet Publishing and Broadcasting and Web Search Portals	961	522	-46%	2%

Source: EMSI 2022.3

Employer	Bay	Employer	Silicon Valley
Deloitte	91	Stanford University	69
Walmart / Sam's	89	Deloitte	33
Stanford University	87	Walmart / Sam's	19
University Of California	86	Clarity Consultants	19
Transdevna	62	Servicenow	17
National Security Agency	42	C2Educate	14

Source: Burning Glass

Table 6. Top Employers Posting Educational Immersive Media Occupations in Bay Region and Silicon Valley Sub-Region (Nov. 2021 – Oct. 2022)

Educational Supply

There are two (2) community colleges in the Bay Region issuing 18 awards on average annually (last 3 years ending 2019-20) on TOP 0860.00 - Educational Technology. In the Silicon Valley Sub-Region, there is a one (1) community college (Foothill College) that issued 17 awards on average annually (last 3 years) on this TOP code.

There are a five (5) other educational institutions in the Bay Region issuing 78 awards on average annually (last 3 years ending 2019-20) on CIP 13.0501- Educational/Instructional Technology. There are no other educational institution in the Silicon Valley Sub-Region issuing awards on average annually (last 3 years) on this CIP code.

Table 7a. Community College Awards on TOP 0860.00 - Educational Technology in Bay Region

College	Subregion	Low unit Certificate	Total
Foothill	Silicon Valley	17	17
Merritt	East Bay	1	1
Total		**18**	**18**

Source: Data Mart

Note: The annual average for awards is 2017-18 to 2019-20.

Table 7b. Other Educational Institutions Awards on CIP 13.0501 - Educational/Instructional Technology in Bay Region

College	Subregion	Bachelor's degree	Master's degree	Total
Academy of Art University	Mid-Peninsula	6	9	15
Touro University California	North Bay	0	14	14
University of San Francisco	Mid-Peninsula	0	1	1
California State University-East Bay	East Bay	0	11	11
California State University-Monterey Bay	SC-Monterey	0	37	37
Total		**6**	**72**	**78**

Source: IPEDS

Note: The annual average for awards is 2017-18 to 2019-20.

Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 2,152 annual openings for the Educational Immersive Media occupational cluster and 96 annual (3-year average) awards for an annual undersupply of 2,056 students. In the Silicon Valley Sub-Region, there is also a gap with 653 annual openings and 17 annual (3-year average) awards for an annual undersupply of 636 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0860.00 - Educational Technology

Metric Outcomes	Bay All CTE Programs	Foothill All CTE Programs	State 0860.00	Bay 0860.00	Silicon Valley 0860.00	Foothill 0860.00
Students with a Job Closely Related to Their Field of Study	74%	91%	88%	90%	86%	86%
Median Annual Earnings for SWP Exiting Students	$47,419	$66,288	$85,341	$90,496	$94,740	$94,188
Median Change in Earnings for SWP Exiting Students	23%	43%	9%	9%	10%	10%
Exiting Students Who Attained the Living Wage	52%	64%	77%	82%	80%	83%

Source: Launchboard Strong Workforce Program Median of 2017 to 2020.

Skills, Certifications and Education

Table 9. Top Skills for Educational Immersive Media Occupations in Bay Region (Nov. 2021 – Oct. 2022)

Skill	Posting	Skill	Posting
Training Programs	1,035	Administrative Support	253
Scheduling	1,001	Cardiopulmonary Resuscitation (CPR)	253
Teaching	877	Stakeholder Management	249
Project Management	827	Quality Assurance and Control	248
Training Materials	675	Sales	247
Onboarding	574	Leadership Development	234
Budgeting	567	Educational Programs	230
Customer Service	551	Psychology	230
Staff Management	480	Talent Management	230
Vaccination	445	Employee Training	224
Instructional Design	430	New Hire Orientation	215
Learning Management System	416	Record Keeping	215
Staff Development	382	Change Management	213
Technical Training	302	Data Analysis	211

Source: Burning Glass

Table 10. Certifications for Educational Immersive Media Occupations in Bay Region (Nov. 2021 – Oct. 2022)

Certification	Posting	Certification	Posting
Driver's License	555	ServSafe	29
Licensed Vocational Nurse (LVN)	193	Board Certified Behavior Analyst (BCBA)	28
First Aid Cpr Aed	160	Train The Trainer	26
Registered Nurse	78	Project Management Professional (PMP)	22
Certified Teacher	56	Epic Certification	22
Basic Life Saving (BLS)	54	Administrative Services Credential	20
Registered Behavior Technician	49	Security Clearance	19
Basic Cardiac Life Support Certification	43	Personal Fitness Trainer Certification	17
Project Management Certification	36	Cdl Class C	15
Certified Hospice and Palliative Nurse (CHPN)	34	Professional in Human Resources	14

Source: Burning Glass

Table 11. Education Requirements for Educational Immersive Media Occupations in Bay Region

Education (minimum advertised)	Latest 12 Mos. Postings	Percent 12 Mos. Postings
High school or vocational training	570	18%
Associate's degree	142	4%
Bachelor's degree and higher	3,131	78%

Source: Burning Glass

Methodology

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

Sources

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

Contacts

For more information, please contact:

- Leila Jamoosian, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), leila@baccc.net
- John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544

Cross-Listed Course Information

Please briefly explain how the course content fits in the curriculum of each department

Every STEM discipline exhibits equity and opportunity gaps in terms of student success, workforce participation, and professional advancement. Further, notable discoveries in every STEM discipline have historical connections to racism, sexism, and other forms of discrimination and exclusion. As a result, this course content is central to addressing diversity, equity, inclusion, and justice across STEM.

Please briefly explain how the course content crosses over two disciplines

While STEM disciplines share much in common, each discipline has its own unique array of diversity and inclusion challenges. As such, learners will benefit from an interdisciplinary approach to studying diversity, equity, inclusion, and justice in STEM.

Please briefly explain how cross-listing these courses will benefit our students

Numerous recent national calls have advocated for an interdisciplinary emphasis in STEM instruction. This is perhaps nowhere more important than in studying issues of diversity, equity, inclusion, and justice, which include unique challenges in each discipline. This cross-listing promises to attract students from across a broader array of STEM fields to engage in these interdisciplinary conversations.

Comments & other relevant information for discussion

We confirm that discussions have taken place involving departmental faculty and the dean in preparation for this cross-listing.

Note: Request is to add C S 81 to established cross-listing of BIOL 81, CHEM 81 & MATH 83.

C S F081. : LEARNERS ENGAGED IN ADVOCATING FOR DIVERSITY IN STEM

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Computer Science (C S)
Course Number
F081.

Department
Computer Science (C S)

Division
Science Technology Engineering and Mathematics (1PS)

Units
4

Former ID

Cross Listed
BIOL F081. - LEARNERS ENGAGED IN ADVOCATING FOR DIVERSITY IN STEM
CHEM F081. - LEARNERS ENGAGED IN ADVOCATING FOR DIVERSITY IN STEM
MATH F083. - LEARNERS ENGAGED IN ADVOCATING FOR DIVERSITY IN STEM

Related Courses

Maximum Units
4

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
4

Weekly Lab Hours
0

Weekly Out of Class Hours
8

Special Hourly Notation

Total Contact Hours
48

Total Student Learning Hours
144

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade Only

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
Certificate of Achievement
Foothill GE

Foothill GE Status
Area VII: Lifelong Learning

Need/Justification
This course is a required course for the certificate of achievement in Bio-Health Diversity and Inclusion Leadership, and it partially satisfies the Foothill GE requirement for Area VII, Lifelong Learning.

Course Description
This course is intended for students interested in equity, diversity, and inclusion in the sciences. Students will explore research on inclusion and diversity in STEM and health science, as well as research on interventions to enhance inclusion and diversity in those fields in higher education contexts. Students will reflect on how their own identities have impacted their experiences in science and develop strategies to promote equity in their future STEM or health science careers. Through service learning, students will co-author culturally relevant curricular materials that will expand faculty capacity to connect students' personal lives to course content. Materials developed by students will be used and assessed in STEM and/or health science courses at Foothill College, local middle schools, and/or local

high schools, and will be made available for a nationwide audience of teachers and professors.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: BIOL 1A, 40A, 41, or equivalent; ENGL 1A or 1AH or ESLL 26 or equivalent; not open to students with credit in BIOL 81, CHEM 81, or MATH 83.

Course Objectives

The student will be able to:

1. Evaluate the current state of equity and inclusion in STEM and in STEM education
2. Compare various social phenomena related to equity and inclusion in STEM
3. Appraise physiological and psychological responses in environments lacking inclusivity
4. Construct evidence-based interventions to enhance equity and inclusion in STEM fields
5. Assess their own identities in relation to STEM equity and inclusion

Course Content

1. Current state of equity and inclusion in STEM and in STEM education
    1. Measurement of equity and diversity in STEM fields
        1. Equity gaps
    2. Significance of diversity in STEM and health science
        1. Impacts of diversity on research quality/outcomes
        2. Impacts of diversity on health outcomes/health disparities
        3. Impacts of diversity on the quality of STEM field products
        4. Impacts of diversity on STEM field workers and users
2. Social phenomena related to equity and inclusion in STEM
    1. Implicit bias
    2. Deficit models
    3. Stereotype threat
    4. Sense of belonging
    5. Imposter syndrome
    6. Societal power relations
    7. Student relationships
    8. STEM identity
    9. Self-efficacy
3. Physiological responses in environments lacking inclusivity
    1. Endocrine responses
    2. Neurological responses

4. Evidence-based interventions to enhance equity and inclusion in STEM
    1. Inclusive teaching and learning strategies
    2. Role modeling
    3. Possible selves
    4. Scientific teaching
    5. Strategies for the assessment of interventions
5. Understanding one's own identities in relation to STEM equity and inclusion
    1. Assessment of one's own intersectional identities
    2. Assessment of one's own strategies navigating within and disrupting traditional STEM environments
    3. Exploration of strategies for monitoring equity and promoting inclusion in academic and professional settings

Lab Content

Not applicable.

Special Facilities and/or Equipment

1. Multimedia lecture room
2. Student and instructional computers with internet access
3. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Self, peer, and instructor evaluation of educational interventions developed by students
Written assignments requiring analysis of academic articles or book chapters
Reflective journals
Participation in discussions
Exams consisting of subjective and objective items
Evaluation of case studies

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture
Cooperative learning activities
Discussions

Representative Text(s)

Please provide justification for any texts that are older than 5 years

No textbooks exist for this one-of-a-kind a course, so course readings rely on primary sources from the research literature. This means students often read classic papers in the

field that were authored more than five years ago. That said, numerous readings from within the last five years are also included.

Other Materials

Weekly academic articles or book chapters on equity and inclusion in the sciences, supplemented at instructor's discretion with additional readings or course reader.

The following are examples of suggested books for the course:

Palmer, Robert T., and J. Luke Wood. Community Colleges and STEM: Examining Underrepresented Racial and Ethnic Minorities. 2013.

Steele, Claude. Whistling Vivaldi: How Stereotypes Affect Us and What We Can Do. 2011.

Wood, J.L., and R.T. Palmer, eds. STEM Models of Success: Programs, Policies, and Practices in the Community College. 2014.

The following are examples of suggested academic articles for the course:

Schinske J., H. Perkins, A. Snyder, and M. Wyer. "Scientist Spotlight Homework Assignments Shift Students' Stereotypes of Scientists and Enhance Science Identity in a Diverse Introductory Science Class." CBE - Life Sciences Education. 15(3) (Fall 2016): ar47.

Tanner, K. "Structure Matters: Twenty-One Teaching Strategies to Promote Student Engagement and Cultivate Classroom Equity." CBE - Life Sciences Education. 12(3) (Fall 2013): 322-331.

Miriti, M.N. "Nature in the eye of the beholder: A case study for cultural humility as a strategy to broaden participation in STEM." Education Sciences. 9(4) (2019): 291.

Vakil, S., and M.M.K. de Royston. "Exploring Politicized Trust in a Racially Diverse Computer Science Classroom." Race Ethnicity and Education. 22(4) (2019): 545-567. https://doi.org/10.1080/13613324.2019.1592846

Vakil, Sepehr. "'I've Always Been Scared That Someday I'm Going to Sell Out': Exploring the relationship between Political Identity and Learning in Computer Science Education." Cognition and Instruction. 38:2 (2020): 87-115, DOI: 10.1080/07370008.2020.1730374.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. Reading and annotation of academic articles and book chapters on STEM equity
2. Journal responses to assigned readings
3. Composition of biographical vignettes on diverse scientists

4. Composition of educational interventions aimed at enhancing STEM equity and inclusion

Authorized Discipline(s):
Biological Sciences or Chemistry or Mathematics or Computer Science

Faculty Service Area (FSA Code)
BIOLOGICAL SCIENCES

Taxonomy of Program Code (TOP Code)
*0707.10 - Computer Programming

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation
Area E: Lifelong Understanding

Transferability
CSU

Validation Date
5/24/23

Division Dean Only

Seat Count
32

Load
.089

FOAP Codes:

Fund Code
114000 - General Operating- Unrestricted

Org Code
141021 - Biology (Bio Sciences General)

Account Code
1320

Program Code
040100 - Biology, General

Cross-Listed Course Information

Please briefly explain how the course content fits in the curriculum of each department
The content of Popular Culture and US History fits in the curriculum of both Film, Television, and Electronic Media (aka Media Studies) and Humanities in that it explores diverse aspects of mass media, i.e. film, television, music, etc., as found in FTVE courses, from multiple disciplinary perspectives- historical, economic, social, political, cultural, functional, and critical- as found in HUMN courses.

Please briefly explain how the course content crosses over two disciplines
The content of Popular Culture and US History fits in the discipline of both Music and Humanities in that it uses similar methods of inquiry found in both; the topics are examined from a functional, artistic, historical and critical perspectives as found in the Music discipline and from the historical, economic, social, political, cultural, functional, and critical perspectives as found in the Humanities discipline.

Please briefly explain how cross-listing these courses will benefit our students
This course is complementary to both departments and will offer students two locations in which to find these classes and add them to their pathway of study.

Comments & other relevant information for discussion
None

HUMN F012H : HONORS POPULAR CULTURE & UNITED STATES HISTORY

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Humanities (HUMN)
Course Number
F012H

Department
Humanities (HUMN)

Division
Business and Social Sciences (1SS)

Units
4

Former ID

Cross Listed
MDIA F012H - HONORS POPULAR CULTURE & UNITED STATES HISTORY

Related Courses
HUMN F012. - POPULAR CULTURE & UNITED STATES HISTORY
MDIA F012. - POPULAR CULTURE & UNITED STATES HISTORY

Maximum Units
4

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
4

Weekly Lab Hours
1

Weekly Out of Class Hours
8

Special Hourly Notation

Total Contact Hours
60

Total Student Learning Hours
156

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
AA Degree
Certificate of Achievement
AS-T Degree
Foothill GE

Foothill GE Status
Area VI: United States Cultures & Communities

Need/Justification
This course is a restricted support course for the ADT in Film, Television, and Electronic Media, and it satisfies the Foothill GE requirement for Area VI, United States Cultures & Communities.

Course Description
Interdisciplinary overview of popular culture as a window for understanding American history and society. Theories and methods of analyzing the artifacts of popular culture. Overarching themes: 1) the interpretation of American history via popular culture media; 2) interaction between American historical events and trends, and popular culture.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Demonstrated proficiency in English by placement via multiple measures OR through an equivalent placement process OR completion of ESLL 125 & ESLL 249; not open to students with credit in F A 2, HUMN 12, MDIA 12, or MDIA 12H.

Course Objectives

The student will be able to:

1. Analyze the relationship between popular culture and historical events and trends
2. Discuss the impact of diverse cultures within American culture
3. Identify and evaluate historical sources of popular culture
4. Compare and contrast the differences between recorded history and popular history
5. Evaluate the influence of contemporary thought on historical events
6. Appraise the importance of context and perspective when studying history, particularly through the lens of popular culture
7. Analyze the power of popular culture to shape and influence politics, social movements, and economics
8. Recognize and appreciate both the differences and similarities of our combined cultural history
9. Apply what we have learned of the past to the understanding of similar aspects of the present

Course Content

1. History through the lens of pop culture
    1. Film and television
        1. Perspective of contemporary viewing audiences
        2. Context of time of creation
        3. Entertainment versus historical record
    2. America and the Western
        1. Cowboy as American symbol
        2. Myth of the West
        3. Changing role of gender and race
2. Popular culture and historical interaction
    1. Politics and music (we will explore three of the following)
        1. Counter culture and punk
        2. Patriotism and country
        3. Integration and rock 'n' roll
        4. Oppression and hip hop
        5. Reaction to war
    2. Social movements and television (we will explore three of the following)
        1. Mary Tyler Moore and feminism
        2. All in the Family and bigotry

3. MASH and war
4. Ellen/Will & Grace and sexual orientation
5. Star Trek, tolerance, and technology

3. Contributions of immigrants (we will explore three of the following)
    1. Food
    2. Comedy
    3. Fashion
    4. Music
    5. Film
    6. Sports
    7. Language

Lab Content

1. Students utilize theoretical knowledge to analyze popular culture artifacts (films, television, music, etc.) within an historical context.
2. Students discuss contemporary examples of popular culture artifacts that parallel historical examples.

Special Facilities and/or Equipment

1. Lecture room equipped with projection equipment, video/DVD players, sound equipment, and a computer.
2. When taught via Foothill Global Access: on-going computer access with email and internet software capabilities.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
In-class essay or online group discussion posting of 300 words minimum assembling students' initial knowledge of the unit topic to be discussed
Quizzes based on unit readings
In-class essay or online group discussion posting of 400 words minimum applying concepts of unit and unit learning outcomes to a contemporary artifact
500 words minimum essay reflecting on concepts of unit and unit learning outcomes
Honors Institute students are required to either 1) write an additional four prompted journal entries that integrate core concepts and course learning outcomes into their life experiences or 2) create a project in which they compare/contrast media moments from the past and present via interview and research

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations using mixed media sources
Classroom discussion via instructor-led prompts

Methods of Instruction may include but are not limited to the following:
Supplemental discussions on web-based course management system

Representative Text(s)

Author(s)	Title	Publication Date
Campbell, Richard, Christopher R. Martin, and Bettina Fabos	Media and Culture	2019
Brandt, Jenn, and Callie Clare	An Introduction to Popular Culture in the US: People, Politics, and Power	2018

Please provide justification for any texts that are older than 5 years

Other Materials

Open Education Resources, including online articles, blogs, podcasts, and videos.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. In-class essay or online group discussion posting of 300 words minimum assembling students' initial knowledge of the unit topic to be discussed
2. Three chapters or articles required reading per unit
3. Quizzes based on readings
4. In-class essay or online group discussion posting of 400 words minimum applying concepts of unit and unit learning outcomes to a contemporary artifact
5. 500 words minimum essay reflecting on concepts of unit and unit learning outcomes

Authorized Discipline(s):
Music or Humanities

Faculty Service Area (FSA Code)
INTERDISCIPLINARY STUDIES

Taxonomy of Program Code (TOP Code)
1001.00 - Fine Arts, General

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU/UC

Validation Date
9/14/23

Division Dean Only

Seat Count
40

Load
.105

FOAP Codes:

Fund Code
114000 - General Operating- Unrestricted

Org Code
123061 - Humanities

Account Code
1320

Program Code
490300 - Humanities

MDIA F012H : HONORS POPULAR CULTURE & UNITED STATES HISTORY

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Media Studies (MDIA)
Course Number
F012H

Department
Media Studies (MDIA)

Division
Fine Arts and Communication (1FA)

Units
4

Former ID

Cross Listed
HUMN F012H - HONORS POPULAR CULTURE & UNITED STATES HISTORY

Related Courses
HUMN F012. - POPULAR CULTURE & UNITED STATES HISTORY
MDIA F012. - POPULAR CULTURE & UNITED STATES HISTORY

Maximum Units
4

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
4

Weekly Lab Hours
1

Weekly Out of Class Hours
8

Special Hourly Notation

Total Contact Hours
60

Total Student Learning Hours
156

Repeatability Statement
Not Repeatable

Credit Status
Credit

Degree Status
Applicable

Is Basic Skills applicable to this course?
No

Grading
Letter Grade (Request for Pass/No Pass)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
AA Degree
Certificate of Achievement
AS-T Degree
Foothill GE

Foothill GE Status
Area VI: United States Cultures & Communities

Need/Justification
This course is a restricted support course for the ADT in Film, Television, and Electronic Media, and it satisfies the Foothill GE requirement for Area VI, United States Cultures & Communities.

Course Description
Interdisciplinary overview of popular culture as a window for understanding American history and society. Theories and methods of analyzing the artifacts of popular culture. Overarching themes: 1) the interpretation of American history via popular culture media; 2) interaction between American historical events and trends, and popular culture.

Course Prerequisites

Course Corequisites

Course Advisories
Advisory: Demonstrated proficiency in English by placement via multiple measures OR through an equivalent placement process OR completion of ESLL 125 & ESLL 249; not open to students with credit in F A 2, HUMN 12, HUMN 12H, or MDIA 12.

Course Objectives

The student will be able to:

1. Analyze the relationship between popular culture and historical events and trends
2. Discuss the impact of diverse cultures within American culture
3. Identify and evaluate historical sources of popular culture
4. Compare and contrast the differences between recorded history and popular history
5. Evaluate the influence of contemporary thought on historical events
6. Appraise the importance of context and perspective when studying history, particularly through the lens of popular culture
7. Analyze the power of popular culture to shape and influence politics, social movements, and economics
8. Recognize and appreciate both the differences and similarities of our combined cultural history
9. Apply what we have learned of the past to the understanding of similar aspects of the present

Course Content

1. History through the lens of pop culture
    1. Film and television
        1. Perspective of contemporary viewing audiences
        2. Context of time of creation
        3. Entertainment versus historical record
    2. America and the Western
        1. Cowboy as American symbol
        2. Myth of the West
        3. Changing role of gender and race
2. Popular culture and historical interaction
    1. Politics and music (we will explore three of the following)
        1. Counter culture and punk
        2. Patriotism and country
        3. Integration and rock 'n' roll
        4. Oppression and hip hop
        5. Reaction to war
    2. Social movements and television (we will explore three of the following)
        1. Mary Tyler Moore and feminism
        2. All in the Family and bigotry

3. MASH and war
4. Ellen/Will & Grace and sexual orientation
5. Star Trek, tolerance, and technology

3. Contributions of immigrants (we will explore three of the following)
    1. Food
    2. Comedy
    3. Fashion
    4. Music
    5. Film
    6. Sports
    7. Language

Lab Content

1. Students utilize theoretical knowledge to analyze popular culture artifacts (films, television, music, etc.) within an historical context.
2. Students discuss contemporary examples of popular culture artifacts that parallel historical examples.

Special Facilities and/or Equipment

1. Lecture room equipped with projection equipment, video/DVD players, sound equipment, and a computer.
2. When taught via Foothill Global Access: on-going computer access with email and internet software capabilities.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
In-class essay or online group discussion posting of 300 words minimum assembling students' initial knowledge of the unit topic to be discussed
Quizzes based on unit readings
In-class essay or online group discussion posting of 400 words minimum applying concepts of unit and unit learning outcomes to a contemporary artifact
500 words minimum essay reflecting on concepts of unit and unit learning outcomes
Honors Institute students are required to either 1) write an additional four prompted journal entries that integrate core concepts and course learning outcomes into their life experiences or 2) create a project in which they compare/contrast media moments from the past and present via interview and research

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Lecture presentations using mixed media sources
Classroom discussion via instructor-led prompts

Methods of Instruction may include but are not limited to the following:
Supplemental discussions on web-based course management system

Representative Text(s)

Author(s)	Title	Publication Date
Campbell, Richard, Christopher R. Martin, and Bettina Fabos	Media and Culture	2019
Brandt, Jenn, and Callie Clare	An Introduction to Popular Culture in the US: People, Politics, and Power	2018

Please provide justification for any texts that are older than 5 years

Other Materials

Open Education Resources, including online articles, blogs, podcasts, and videos.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

1. In-class essay or online group discussion posting of 300 words minimum assembling students' initial knowledge of the unit topic to be discussed
2. Three chapters or articles required reading per unit
3. Quizzes based on readings
4. In-class essay or online group discussion posting of 400 words minimum applying concepts of unit and unit learning outcomes to a contemporary artifact
5. 500 words minimum essay reflecting on concepts of unit and unit learning outcomes

Authorized Discipline(s):
Music or Humanities

Faculty Service Area (FSA Code)
INTERDISCIPLINARY STUDIES

Taxonomy of Program Code (TOP Code)
1001.00 - Fine Arts, General

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
CSU/UC

Validation Date
9/14/23

Division Dean Only

Seat Count
40

Load
.105

FOAP Codes:

Fund Code
114000 - General Operating- Unrestricted

Org Code
143121 - FH-Media Studies (MDIA)

Account Code
1320

Program Code
061410 - Multimedia

ALCB F452Y : MULTIMEDIA VISUAL ART

Proposal Type
New Course

Effective Term
Summer 2024

Subject
Adaptive Learning: Community Based (ALCB)
Course Number
F452Y

Department
Adaptive Learning (A L)

Division
Student Resource and Support Programs (1SR)

Units
0

Former ID

Cross Listed

Related Courses

Maximum Units
0

Does this course meet on a weekly basis?
Yes

Weekly Lecture Hours
2

Weekly Lab Hours
0

Weekly Out of Class Hours
0

Special Hourly Notation

Total Contact Hours
24

Total Student Learning Hours
24

Repeatability Statement
Unlimited Repeatability

Repeatability Criteria
Repeated enrollment in this course will further enhance the student's skill and breadth of knowledge.

Credit Status
Non-Credit

Degree Status
Non-Applicable

Is Basic Skills applicable to this course?
No

Grading
Non-Credit Course (Receives no Grade)

Will credit by exam be allowed for this course?
No

Honors
No

Degree or Certificate Requirement
None of the above (Stand Alone course)

Stand Alone

If a Foothill credit course is not part of a state-approved associate's degree, certificate of achievement, or the Foothill GE pattern, it is considered by the state to be a "Stand Alone Course." Per Title 5, local curriculum committees must review and approve proposed Stand Alone courses to ensure that they are consistent with credit course standards (§55002), the community college mission, and that there is sufficient need and resources for the course. To be compliant with state regulations, there must be a completed, approved Stand Alone form on file in the Office of Instruction. Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Are you requesting Stand Alone approval for the course on a temporary or permanent basis?

• Temporary means the course will be incorporated into a new degree or certificate that is not yet State approved.
• Permanent means there are no plans to add the course to a State approved degree or certificate, nor to the Foothill GE pattern.

Please select
Permanent

The Curriculum Committee must evaluate this application based on the following criteria:

Criteria A. Appropriateness to Mission

The Foothill College Mission states: Believing a well-educated population is essential to sustaining and enhancing a democratic society, Foothill College offers programs and services that empower students to achieve their goals as members of the workforce, as future students, and as global citizens. We work to obtain equity in achievement of student outcomes for all California student populations, and are guided by our core values of honesty, integrity, trust, openness, transparency, forgiveness, and sustainability. Foothill College offers associate degrees and certificates in multiple disciplines, and a baccalaureate degree in dental hygiene.

Please indicate how your course supports the Foothill College Mission:
Basic Skills

Criteria B. Need

A course may only be granted Stand Alone Approval if there is demonstrable need for the course in the college service area. Please provide evidence of the need or demand for your course, such as ASSIST documentation for transfer courses or Labor Market Information for workforce/CTE courses (if LMI is unavailable, advisory board minutes or employer surveys may be submitted). For basic skills courses, assessment-related data or information may be provided. Evidence may be provided in the box below and/or uploaded as an attachment.

Evidence

This specialized course is one of the community-based enrichment and lifelong learning options offered in senior centers/residences and other community sites throughout the local area. The courses were developed in response to site coordinator requests, based upon individual site need and demands from local residents.

Attach evidence

Need/Justification
Equity in education for disabled, nontraditional students, which include older retirees, is a longstanding priority for Foothill. In addition, it is mandated and subsidized by the State. Zero-credit enrichment courses, such as multimedia visual art, firmly belong in this category. The course is one of several that demonstrate Foothill's commitment, unmatched elsewhere in the Bay Area, to deliver quality enrichment classes directly to disabled students in their group residences, without requiring them to commute to campus.

Course Description
By offering a variety of techniques and art options (painting, drawing, collage, plastic clay, etc.), this multimedia art course encourages the disabled student to develop their creative

potential. Activities are designed to enhance physical skills and cognitive awareness and enable the student to develop independent creative thinking.

Course Prerequisites

Course Corequisites

Course Advisories

Course Objectives

The student will be able to:

1. Through exposure to different art media, explore ways to express oneself creatively
2. Demonstrate the ability to use a variety of art materials
3. Make independent choices for subject matter and materials

Course Content

1. Through exposure to different art media, students will be able to explore ways to express themselves creatively
    1. Choose subject matter for projects
    2. Select media that best matches what they'd like to create
2. The student will demonstrate the ability to use a variety of art materials
    1. Introduction to different tools to assist in completion of artwork
    2. Seek particular tools to help with working on project
3. Student will make independent choice for subject matter and materials
    1. Selecting materials that best suit art projects
    2. Show facility in use of selected materials

Lab Content

Not applicable.

Special Facilities and/or Equipment
1. The facility should provide surfaces (tables) and a work space appropriate for art-making with seating enough apart so that the student won't be hampered by having their classmates seated too close by.
2. When taught online/virtual: students and faculty need internet access with Zoom-capable computer, monitor, and speakers.

Methods of Evaluation

Methods of Evaluation may include but are not limited to the following:
Students will be tracked to evaluate their facility in using materials and producing an art project to their satisfaction

Methods of Instruction

Methods of Instruction may include but are not limited to the following:
Instructor will provide both written and verbal instruction
Instructor will provide demonstration

Representative Text(s)

Please provide justification for any texts that are older than 5 years

Other Materials

Various art materials, as needed, e.g., watercolor or acrylic paints, pastel pencils or chalk, paint brushes, appropriate paper (e.g., watercolor or drawing), art paper (multi-colored), erasers, scissors, plastic clay.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

Not applicable.

Authorized Discipline(s):
Specialized Instruction (Disabled Student Programs and Services): Noncredit

Faculty Service Area (FSA Code)
OAS/LIFE LONG LEARNING

Taxonomy of Program Code (TOP Code)
4930.30 - Learning Skills, Disabled

Articulation Office Only

C-ID Notation

IGETC Notation

CSU GE Notation

Transferability
None

Validation Date
N/A

Division Dean Only

Seat Count
30

Load
.030

FOAP Codes:

Fund Code
122010 - DSP&S Special Ed FH

Org Code
131021 - FH Adapt Learning: Community Based

Account Code
1320

Program Code
493030 - Learning Skills, Disabled