**College Curriculum Committee Meeting Agenda**
**Tuesday, November 5, 2019**
**2:00 p.m. – 3:30 p.m.**
**President's Conference Room**

| Item | Action | Attachment(s) | Presenter(s) |
|---|---|---|---|
| 1. Minutes: October 22, 2019 | Action | #11/5/19-1 | Kuehnl |
| 2. Report Out from Division Reps | Discussion | | All |
| 3. Announcements<br>a. New Course Proposals<br>b. Notification of Proposed Requisites<br>c. CourseLeaf First Look<br>d. Academic Calendar Exploration and Feasibility Analysis (ACEFA) | Information | <br>#11/5/19-2-8<br>#11/5/19-9 | Kuehnl<br><br><br><br>Starer<br>Gilstrap |
| 4. Stand Alone Approval Request: HORT 400A | 2nd Read/ Action | #11/5/19-10 | Kuehnl |
| 5. Stand Alone Approval Request: HORT 400B | 2nd Read/ Action | #11/5/19-11 | Kuehnl |
| 6. Stand Alone Approval Request: HORT 400C | 2nd Read/ Action | #11/5/19-12 | Kuehnl |
| 7. Stand Alone Approval Requests: ITSC 101, 105, 106, 110, 113, 114, 115, 123, 125, 127, 128, 130, 131, 132, 134 | 2nd Read/ Action | #11/5/19-13-28 | Kuehnl |
| 8. Stand Alone Approval Request: BUSI 12 | 1st Read | #11/5/19-29 | Kuehnl |
| 9. Stand Alone Approval Request: C S 48A | 1st Read | #11/5/19-30 | Kuehnl |
| 10. Stand Alone Approval Request: ESLL 201A | 1st Read | #11/5/19-31 | Kuehnl |
| 11. New Program Application: Digital Marketing Certificate of Achievement | 1st Read | #11/5/19-32 | Kuehnl |
| 12. Division Curriculum Committee Practices and Processes Round Table | Discussion | | Kuehnl |
| 13. Good of the Order | | | Kuehnl |
| 14. Adjournment | | | Kuehnl |

**Attachments:**

#11/5/19-1 Draft Minutes: October 22, 2019
#11/5/19-2 New Course Proposal: C S 89D
#11/5/19-3 New Course Proposal: V T 51A
#11/5/19-4 New Course Proposal: V T 51C
#11/5/19-5 New Course Proposal: V T 51D
#11/5/19-6 New Course Proposal: V T 51F
#11/5/19-7 New Course Proposal: V T 57L
#11/5/19-8 New Course Proposal: V T 58L
#11/5/19-9 CCC Notification of Proposed Requisites
#11/5/19-10 Stand Alone Course Approval Request: HORT 400A (updated)
#11/5/19-11 Stand Alone Course Approval Request: HORT 400B (updated)
#11/5/19-12 Stand Alone Course Approval Request: HORT 400C (updated)

#11/5/19-13 -28 Stand Alone Course Approval Requests: ITSC 101, 105, 106, 110, 113, 114, 115, 123, 125, 127, 128, 130, 131, 132, 134
#11/5/19-29 Stand Alone Course Approval Request: BUSI 12
#11/5/19-30 Stand Alone Course Approval Request: C S 48A
#11/5/19-31 Stand Alone Course Approval Request: ESLL 201A
#11/5/19-32 New Program Application: Digital Marketing Certificate of Achievement

**2019-2020 Curriculum Committee Meetings:**

| Fall 2019 Quarter | Winter 2020 Quarter | Spring 2020 Quarter |
|---|---|---|
| ~~10/8/19~~ | 1/21/20 | 4/21/20 |
| ~~10/22/19~~ | 2/4/20 | 5/5/20 |
| 11/5/19 | 2/18/20 | 5/19/20 |
| 11/19/19 | 3/3/20 | 6/2/20 |
| 12/3/19 | 3/17/20 | 6/16/20 |

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

**2019-2020 Curriculum Deadlines:**

*12/1/19* Deadline to submit courses to CSU for CSU GE approval (Articulation Office).
*12/1/19* Deadline to submit courses to UC/CSU for IGETC approval (Articulation Office).
*TBD* Deadline to submit local GE applications for 2020-21 catalog (Faculty/Divisions).
*TBD* Curriculum Sheet updates for 2020-21 catalog (Faculty/Divisions).
*6/1/20* Deadline to submit new/revised courses to UCOP for UC transferability (Articulation Office).
*TBD* COR/Title 5 updates for 2021-22 catalog (Faculty/Divisions).
*Ongoing* Submission of courses for C-ID approval and course-to-course articulation with individual colleges and universities (Articulation Office).

Distribution:
Micaela Agyare (LIBR), Ben Armerding (LA), Rachelle Campbell (BH), Zachary Cembellin (PSME), Stephanie Chan (LA), Isaac Escoto (AS President), Valerie Fong (Acting Dean, LA), Marnie Francisco (PSME), Evan Gilstrap (Articulation Officer), Hilary Gomes (FA), Kurt Hueg (Dean, BSS), Eric Kuehnl (Faculty Co-Chair), Kristy Lisle (VP Instruction), Kent McGee (Evaluations), Dokesha Meacham (CNSL), Allison Meezan (BSS), Ché Meneses (FA), Brian Murphy (APPR), Ron Painter (PSME), Lisa Schultheis (BH), Matt Stanley (KA), Paul Starer (Administrator Co-Chair), Ram Subramaniam (Dean, BH & PSME), Nick Tuttle (BSS), Mary Vanatta (Curriculum Coordinator), Anand Venkataraman (PSME)

*Updated 9/25/19*

# COLLEGE CURRICULUM COMMITTEE

Committee Members - 2019-20

Meeting Date: 11/5/19

Co-Chairs (2)

| | | | | |
|---|---|---|---|---|
| ✓ | Eric Kuehnl | 7479 | Vice President, Academic Senate (tiebreaker vote only) | kuehnleric@fhda.edu |
| ✓ | Paul Starer | 7179 | Interim Associate Vice-President of Instruction | starerpaul@fhda.edu |

Voting Membership (12 total; 1 vote per division)

| | | | | |
|---|---|---|---|---|
| ✓ | Micaela Agyare | 7086 | Library | agyaremicaela@fhda.edu |
| | Ben Armerding | 7453 | LA | armerdingbenjamin@fhda.edu |
| | Rachelle Campbell | 7469 | BH | campbellrachelle@fhda.edu |
| | Zachary Cembellin | 7383 | PSME | cembellinzachary@fhda.edu |
| ✓ | Stephanie Chan | | LA | chanstephanie@fhda.edu |
| | Valerie Fong | 7135 | Acting Dean—LA | fongvalerie@fhda.edu |
| | Marnie Francisco | 7420 | PSME | franciscomarnie@fhda.edu |
| ✓ | Evan Gilstrap | 7675 | Articulation | gilstrapevan@fhda.edu |
| ✓ | Hilary Gomes | 7585 | FA | gomeshilary@fhda.edu |
| ✓ | Kurt Hueg | 7394 | Dean—BSS | huegkurt@fhda.edu |
| ✓ | Dokesha Meacham | 7211 | CNSL | meachamdokesha@fhda.edu |
| ✓ | Allison Meezan | 7166 | BSS | meezankaren@fhda.edu |
| ✓ | Ché Meneses | 7015 | FA | menesesche@fhda.edu |
| ✓ | Brian Murphy | | APPR | brian@pttc.edu |
| ✓ | Ron Painter | | PSME | painterron@fhda.edu |
| | Lisa Schultheis | 7780 | BH | schultheislisa@fhda.edu |
| | | | SRC | |
| ✓ | Matt Stanley | 7222 | KA | stanleymatthew@fhda.edu |
| ✓ | Ram Subramaniam | 7472 | Dean—BH & PSME | subramaniamram@fhda.edu |
| ✓ | Nick Tuttle | 7056 | BSS | tuttlenick@fhda.edu |
| ✓ | Anand Venkataraman | 7495 | PSME | venkataramananand@fhda.edu |

Non-Voting Membership (4)

| | | | | |
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| | | | ASFC Rep. | |
| ✓ | Mary Vanatta | 7439 | Curr. Coordinator | vanattamary@fhda.edu |
| | Kent McGee | 7298 | Evaluations | mcgeekent@fhda.edu |
| | | | SLO Coordinator | |

Visitors

Chris Allen

# College Curriculum Committee
# Meeting Minutes
# Tuesday, October 22, 2019
# 2:00 p.m. – 3:30 p.m.
# President's Conference Room

| Item | Discussion |
|---|---|
| 1. Minutes: October 8, 2019 | **Approved by consensus.** |
| 2. Report Out from Division Reps | **Speaker: All**<br>Apprenticeship: No updates to report, per dean Chris Allen.<br><br>Library: No updates to report.<br><br>Fine Arts: Created Canvas site for division CC meetings/communication; trying to figure out best way to hold meetings (e.g., Zoom vs. face-to-face); working on new Film & TV certificate; meeting scheduled with dean to discuss GID/ART cross-listings discussed at previous CCC meeting.<br><br>PSME: Working on new Data Science certificate in partnership with BUSI dept.<br><br>Kinesiology: No updates to report.<br><br>Counseling: No updates to report.<br><br>BSS: Recent division discussion regarding changing non-transcriptable certificates to transcriptable; Ben Stefonik doing work to institute peer review process for Distance Ed courses within PSYC dept. (and perhaps division-wide, in the future).<br><br>Language Arts: Working on AB 705-related corequisites for ENGL 1A, incl. finalizing ESLL coreq.<br><br>Articulation: No updates to report. |
| 3. Announcements<br>a. Notification of Proposed Requisites | **Speaker: Eric Kuehnl**<br>New requisites for CHEM 12BL & 12CL, effective summer 2020 quarter. Also listed is an ongoing requisite for ENGR 46, for which a Content Review form was not on file. Please share with your constituents. |
| b. ASCCC Fall Plenary Resolutions | Kuehnl will be attending plenary with AS President Isaac Escoto. Gilstrap mentioned resolution 9.01 (Local Determination of International Baccalaureate Credit at California Community Colleges), which states that ASCCC will work with CCCCO to "prepare a model policy" that colleges can adopt, locally; asked if such a policy will be drafted at plenary—Kuehnl will follow up. Kuehnl encouraged the group to read through the resolutions and share with their constituents; contact him with any comments or questions. |
| c. Nutrition and Dietetics ADT Approval | Over the summer, the CCCCO approved the Nutrition and Dietetics ADT! |
| 4. Additions to Credit by Examination List: SPAN 1, 2, 3, 4, 5, 6 | **Speaker: Eric Kuehnl**<br>Language Arts has approved these courses as available for credit by examination. Vanatta asked rep which quarter the courses will be added to the CBE listing—unsure. |
| 5. Stand Alone Approval Request: BUSI 59C | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for BUSI 59C. No comments. |

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| | Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 6. Stand Alone Approval Request: BUSI 59D | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for BUSI 59D. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 7. Stand Alone Approval Request: BUSI 59E | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for BUSI 59E. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 8. Stand Alone Approval Request: MUS 38A | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for MUS 38A. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 9. Stand Alone Approval Request: MUS 38B | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for MUS 38B. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 10. Stand Alone Approval Request: MUS 38C | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for MUS 38C. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 11. Stand Alone Approval Request: PHT 58 | **Speaker: Eric Kuehnl**<br>Second read of Stand Alone Approval Request for PHT 58. No comments.<br><br>Motion to approve **M/S** (Francisco, Venkataraman). **Approved.** |
| 12. Stand Alone Approval Request: HORT 400A | **Speaker: Eric Kuehnl**<br>First read of Stand Alone Approval Request for HORT 400A. Will be permanently Stand Alone. PSME rep noted that form lists course as CTE, yet no LMI or other evidence attached; suggested form be sent back to division for resubmission with sufficient evidence. During meeting, Subramaniam followed up with HORT dept., who responded that there is no LMI for these courses, but workers required to renew their license every two years, and these courses will fulfill that need. Division will update forms for second read with this information.<br><br>Second read and possible action will occur at next meeting. |
| 13. Stand Alone Approval Request: HORT 400B | **Speaker: Eric Kuehnl**<br>First read of Stand Alone Approval Request for HORT 400B. Will be permanently Stand Alone. *[Note: see item 12 for comments.]*<br><br>Second read and possible action will occur at next meeting. |
| 14. Stand Alone Approval Request: HORT 400C | **Speaker: Eric Kuehnl**<br>First read of Stand Alone Approval Request for HORT 400C. Will be permanently Stand Alone. *[Note: see item 12 for comments.]*<br><br>Second read and possible action will occur at next meeting. |
| 15. Stand Alone Approval Requests: ITSC 101, 105, 106, 110, 113, 114, 115, 123, 125, 127, 128, 130, 131, 132, 134 | **Speaker: Eric Kuehnl**<br>First read of Stand Alone Approval Requests for ITSC 101, 105, 106, 110, 113, 114, 115, 123, 125, 127, 128, 130, 131, 132 & 134. All will be permanently Stand Alone. PSME rep noted that LMI evidence looks different than what is commonly submitted for CTE programs, but noted that it looks sufficient. Vanatta mentioned that LMI evidence for CTE programs is a state requirement and suggested that reps not necessarily compare the |

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| | two; even though we are required to have a local process to approve Stand Alone courses, we created this form at CCC, and LMI for Stand Alone courses is not submitted to the state.<br><br>Second read and possible action will occur at next meeting. |
| 16. Requisite Recency | **Speaker: Eric Kuehnl**<br>PSME rep explained that division has long had an issue with students taking a series of courses and taking a significant length of time to complete the series—for example, completing the first quarter and then returning 10-15 years later to continue the series. Because we currently have no policy on recency of requisites, if the student has passed and received credit for the first quarter, there is nothing to prevent them from enrolling in the second quarter, even if they no longer have the sufficient safety knowledge/skills and/or are missing updated information regarding lab procedures, software, etc. Noted that Title 5 allows us to establish a recency requirement of three or more years *[note: §55043]*. Other PSME rep noted that a student cannot repeat a lab course by auditing it; per FHDA policy, auditors must wait until the second week of the quarter to enroll, meaning that they miss required safety lectures that occur within the first two weeks. Acknowledged that some students may have been working in the industry during their absence and wouldn't necessarily need to repeat a requisite; in these cases, the recency requirement could be waived.<br><br>Hueg asked for clarification that setting a recency requirement would allow a student to repeat a course—per PSME rep, yes, and Title 5 does allow for repeatability in this situation. BSS rep asked how often this issue comes up, and asked about the impact on students. Gilstrap noted that students would be able to transfer only one instance of the course. Counseling rep noted that we do already have a similar process for recency petitions for certain programs (e.g., Nursing), which are approved by Academic Council and allow students to repeat courses if required for program admission. Hueg noted he has seen examples of students clearing prereqs many years after having taken the course. BSS rep wondered if creating a recency requirement/policy could result in students taking the course at a different college that doesn't enforce such a policy, in order to not have to repeat the course—PSME rep cautioned against making decisions for purposes of enrollment/funding over pedagogy.<br><br>Fine Arts rep noted that certain studio courses in their division have the same issue around safety; wondered if a safety course could be created to fill in the gaps. Hueg noted the current focus on awarding credit for prior learning and other state-wide initiatives to enable students to complete college more quickly; agreed that safety concerns are an issue. Kuehnl suggested researching how other colleges handle this issue. BSS rep asked PSME reps if there is a specific recency length that they would like to implement—reps will follow up with their colleagues. PSME rep noted concern with looking at other colleges' policies, that CCC may defer to the most lenient standard being used by others. Subramaniam noted Title 5 COR update cycle of five years, and suggested that be used as a basis for requisite recency. Kuehnl noted that even though safety concerns are driving this topic, policy could extend to all courses across campus. Other PSME rep asked for clarification regarding students being able to transfer credit for repeated courses—per Gilstrap, yes, the student would not receive transfer credit for a course that has been repeated.<br><br>PSME reps will follow up with their constituents for suggestions regarding length of recency requirement. Other PSME rep asked if the policy should concern just lab courses, or all courses—BSS rep suggested first setting policy for lab courses and then extending to other courses, perhaps on a |

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| | division-by-division basis. Kuehnl agreed with suggestion that policy begin with lab courses—group agreed. |
| 17. Good of the Order | Kuehnl proposed a CCC Orientation meeting at this time next week (October 29th), particularly for new reps and those who are returning after an absence, but any reps are welcome to attend. Will send Outlook invitation. |
| 18. Adjournment | **2:46 PM** |

**Attendees:** Micaela Agyare (LIBR), Chris Allen (guest—Dean, APPR), Stephanie Chan (LA), Marnie Francisco (PSME), Evan Gilstrap (Articulation Officer), Hilary Gomes (FA), Kurt Hueg (Dean, BSS), Eric Kuehnl (Faculty Co-Chair), Dokesha Meacham (CNSL), Allison Meezan (BSS), Ché Meneses (FA), Ron Painter (PSME), Matt Stanley (KA), Ram Subramaniam (Dean, BH & PSME), Nick Tuttle (BSS), Mary Vanatta (Curriculum Coordinator), Anand Venkataraman (PSME)

**Minutes Recorded by:** M. Vanatta

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# Foothill College
## College Curriculum Committee
## New Course Proposal

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

**Faculty Author:** Baba Kofi A. Weusijana

**Proposed Number:** C S 89D **Proposed Units:** 4.5
**Proposed Hours:** 4 hours lecture, 2 hours laboratory
**Proposed Transferability:** CSU
**Proposed Title:** Advanced Web Application Development

**Proposed Catalog Description & Requisites:**
Systematic treatment of the design and development of applications using advanced modern Web client and server technologies.

Advisory: C S 22A, C S 30A, C S 40A, & C S 84A.

**Proposed Discipline:** Computer Science
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
Certificate of Achievement in Web Application Development

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
Fine Arts: Graphics Design – they offer a certificate in Web Development but their certificate has a different emphasis. It is possible students could be confused between the two certificates offered in web development.

**Comments & Other Relevant Information for Discussion:**
None

**Instruction Office:**
Date presented at CCC:
Number assigned:

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**Faculty Author:** Sandra Gregory/Lisa Eshman

**Proposed Number:** V T 51A **Proposed Units:** 1
**Proposed Hours:** 1 hour lecture
**Proposed Transferability:** CSU
**Proposed Title:** Freshman Forum

**Proposed Catalog Description & Requisites:**
Provides enrichment of the core curriculum of the Veterinary Technology Program. Students will develop or improve study skills, time management, professionalism, communication, and conflict resolution. Lectures, discussion, and workshop format. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep: n/a*_____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
This course is part of the core Veterinary Technology curriculum, and is required to earn an AS in Vet Tech.

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 50A in response to student need for extended orientation time to the rigors of the Vet Tech program and curriculum. It is more specific to needs of first year students and intended to increase student success in the program.

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**Instruction Office:**
Date presented at CCC:
Number assigned:

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## College Curriculum Committee
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**Faculty Author:** Shaelyn St. Onge-Cole

**Proposed Number:** V T 51C **Proposed Units:** 1
**Proposed Hours:** 1 hour lecture
**Proposed Transferability:** CSU
**Proposed Title:** SERVICE LEARNING & LEADERSHIP FOR VETERINARY NURSES

**Proposed Catalog Description & Requisites:**
Provides enrichment of the core curriculum of the Veterinary Technology Program. Students will participate in a service learning activity of their choosing within the veterinary field. Students will have lectures on service learning activities and opportunities. Students will explore different ways of being leaders, in preparation for success in a professional environment. Students will reflect over their school year and create summer study guides to increase student success. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
A.S. Degree in Veterinary Technology

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 51A in response to students' desire for increased engagement in their community; as well as the need for increased leadership development within our program and field.

**Instruction Office:**
Date presented at CCC:
Number assigned:

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# Foothill College
## College Curriculum Committee
## New Course Proposal

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**Faculty Author:** Shaelyn St. Onge-Cole

**Proposed Number:** V T 51D
**Proposed Units:** 1
**Proposed Hours:** 1 hour lecture
**Proposed Transferability:** CSU
**Proposed Title:** SENIOR FORUM

**Proposed Catalog Description & Requisites:**
Provides enrichment of the core curriculum of the Veterinary Technology Program. Students will focus on senior year time management. They will reflect on the summer study guides and continue to identify best practices for studying. They will participate in weekly instructor guided study sessions covering their core curriculum courses this quarter. They will also develop study techniques that will assist them in being successful in future quarters. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
A.S. Degree in Veterinary Technology

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 50D in response to student need for increased support transition the to the rigors of the senior year Vet Tech program and curriculum. It is more specific to needs of senior students and intended to increase student success in the program.

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**Instruction Office:**
Date presented at CCC:
Number assigned:

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## College Curriculum Committee
## New Course Proposal

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**Faculty Author:** Shaelyn St. Onge-Cole

**Proposed Number:** V T 51F **Proposed Units:** 1
**Proposed Hours:** 1 hour lecture
**Proposed Transferability:** CSU
**Proposed Title:** CAREER EXPLORATION FOR VETERINARY NURSES

**Proposed Catalog Description & Requisites:**
Provides enrichment of the core curriculum of the Veterinary Technology Program. Content consists of relevant topics related to concurrent coursework. Lectures, lecture-demonstrations, multimedia presentations, live demonstrations, or hands-on workshops presented on a weekly basis. Students will identify the path that their career will take them and will research what avenues they should take to get there. Students will also work in group setting to further strengthen their inter-personal communication skills. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
A.S. Degree in Veterinary Technology

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 51A to support our students in career development and exploration.

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**Instruction Office:**
Date presented at CCC:
Number assigned:

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# Foothill College
## College Curriculum Committee
## New Course Proposal

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

**Faculty Author:** Shaelyn St. Onge-Cole

**Proposed Number:** V T 57L **Proposed Units:** 1
**Proposed Hours:** 3 hours laboratory
**Proposed Transferability:** CSU
**Proposed Title:** ADVANCED SMALL ANIMAL NURSING

**Proposed Catalog Description & Requisites:**
Practical application of animal care skills and principles of animal care and management, integrating advanced techniques and knowledge gained through classroom instruction. Opportunity to participate in the health care team in a supervisory role with increased organizational responsibility. Emphasis on nursing care and diagnostic nursing for acute and chronic conditions. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

Prerequisite: V T 56.

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
A.S. Degree in Veterinary Technology

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:**
None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 87A in response to student needs and AVMA requirements for increased skill development in a clinic like setting.

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**Instruction Office:**
Date presented at CCC:
Number assigned:

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

# Foothill College
## College Curriculum Committee
## New Course Proposal

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

**Faculty Author:** Shaelyn St. Onge-Cole

**Proposed Number:** V T 58L **Proposed Units:** 1
**Proposed Hours:** 3 hours laboratory
**Proposed Transferability:** CSU
**Proposed Title:** SURGICAL ASSISTING FOR THE VETERINARY NURSE

**Proposed Catalog Description & Requisites:**
Practical application of animal care skills and principles of animal care and management. Opportunity to participate in the health care team involved in the care, management and husbandry of program livestock, companion animals and laboratory animals. Students will also be given an introduction to anesthetic equipment, principles of aseptic technique, sanitation, disinfection and sterilization, introduction to principles of surgical nursing, basic operating room skills and instrumentation. Intended for students in the Veterinary Technology Program; enrollment is limited to students accepted in the program.

Prerequisite: V T 57L

**Proposed Discipline:** Registered Veterinary Technician
(For guidance, refer to the Minimum Quals handbook, available on the CCC webpage.)
*Note: If any proposed discipline falls within the purview of another division, please verify approval from that division. Division Rep:* _____ *Date:* _____

**To which Degree(s) or Certificate(s) would this course potentially be added?**
A.S. Degree in Veterinary Technology

**Are there any other departments that may be impacted from the addition of this course? Please identify those departments and the effect:** None

**Comments & Other Relevant Information for Discussion:**
This course was developed to be in lieu of V T 87B in response to student need for surgical assisting training in preparation for anesthesia lab and graduation. It's intended to be the prerequisite for our capstone anesthesia class during the Spring quarter.

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**Instruction Office:**
Date presented at CCC:
Number assigned:

## CCC Notification of Proposed Prerequisites/Co-Requisites

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

| Target Course Number & Title | COR Editor | Requisite Course Number & Title | New/Ongoing |
|---|---|---|---|
| BIOL 1B: Form & Function in Plants & Animals | L. Schultheis | Prereq: BIOL 1A (Principles of Cell Biology) | Ongoing |
| BIOL 1C: Evolution, Systematics & Ecology | L. Schultheis | Prereq: BIOL 1B (Form & Function in Plants & Animals) | Ongoing |
| ENGL 1A: Composition & Reading | S. Lankford | Coreq: ESLL 201A (Composition & Reading Instructional Support for English Language Learners) or NCEN 401A (Bridge to Transfer English) | Updating coreq options for winter 2020 |
| ENGR 45: Properties of Materials | S. Parikh | Prereq: CHEM 1B or 1BH (General Chemistry or Honors) | Ongoing |
| ENGR 45: Properties of Materials | S. Parikh | Prereq: MATH 1C (Calculus) | Ongoing |
| ENGR 45: Properties of Materials | S. Parikh | Coreq: PHYS 4B (General Physics [Calculus]) | Ongoing |
| ESLL 201A: Composition & Reading Instructional Support for English Language Learners | D. McCormick | Coreq: ENGL 1A (Composition & Reading) | New for winter 2020 |
| V T 57L: Advanced Small Animal Nursing | S. St. Onge-Cole | Prereq: V T 56 (Small Animal Nursing II) | New for 2020-21 |
| V T 58L: Surgical Assisting for the Veterinary Nurse | S. St. Onge-Cole | Prereq: V T 57L (Advanced Small Animal Nursing) | New for 2020-21 |
| V T 84L: Veterinary Anesthesia Laboratory | L. Eshman | Prereq: discussion and demonstration of ability to set up an anesthesia machine | New for 2020-21 |
| V T 84L: Veterinary Anesthesia Laboratory | L. Eshman | Prereq: V T 58L (Surgical Assisting for the Veterinary Nurse) | New for 2020-21 |

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** HORT 400A

**Course Title:** Pest Management: Cultural Requirements

**Credit Status:**

_____ Credit course
X Noncredit course

**Catalog Description**:

This course will focus on the cultural requirements to reduce pesticide use. The first portion will concentrate on building soil and will discuss the chemicals that are deleterious to building soil. The next portion will discuss the methods used to diagnose problems with plants by determining whether it is caused by an organism (living or biotic) or not (non-living or abiotic). Integrated pest management uses the IPM pyramid or a hierarchical scale to select the right pesticide. New products in the marketplace will show the products that are relatively new in the pesticide realm. Weeds are a plant seemingly without virtue. This course will discuss methods of pesticide use to reduce the incidence of pesticide resistance, review the cultural controls for controlling weeds, and indicate which of these plants have benefits in a cropping system. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

X The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
X____ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

| |
|---|
| Course will be used for continuing education for individuals attempting to maintain pesticide licensure. Workers are required to renew their license every two years, and HORT 400A/B/C will fulfill that need. For more information, refer to the California Department of Pesticide Regulation website: https://www.cdpr.ca.gov/docs/license/conted.htm |

**Criteria C. Curriculum Standards (please initial as appropriate)**

_____ The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** David Sauter **Date:** 6/29/18

**Division Curriculum Representative:** Lisa Schultheis **Date:** 10/16/18

**Date of Approval by Division Curriculum Committee:** 10/16/18

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Biological and Health Sciences

## HORT 400A PEST MANAGEMENT: CULTURAL REQUIREMENTS — Summer 2020

**6 hours lecture. This course meets 1 time per quarter.** **.5 Units**

**Total Contact Hours:** 6 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 18 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** .5 **Lab Hours:** 0 **Weekly Out of Class Hours:** 1

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Unlimited Repeatability.

**Criteria:** Each offering of this course will differ, based on changing cultural conditions, such as climate, pests introduced and plant species.

**Status -**

**Course Status:** Active **Grading:** No Credit

**Degree Status:** Non-Applicable **Credit Status:** Non-Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 10-3-18

**Division Dean Information -**

**Seat Count:** 35 **Load Factor:** .008 **FOAP Code:** 114000141091010900

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

This course will focus on the cultural requirements to reduce pesticide use. The first portion will concentrate on

building soil and will discuss the chemicals that are deleterious to building soil. The next portion will discuss the methods used to diagnose problems with plants by determining whether it is caused by an organism (living or biotic) or not (non-living or abiotic). Integrated pest management uses the IPM pyramid or a hierarchical scale to select the right pesticide. New products in the marketplace will show the products that are relatively new in the pesticide realm. Weeds are a plant seemingly without virtue. This course will discuss methods of pesticide use to reduce the incidence of pesticide resistance, review the cultural controls for controlling weeds, and indicate which of these plants have benefits in a cropping system. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**2. Course Objectives -**

The student will be able to:

A. Identify beneficial soil building conditions.
B. Develop strategy for diagnosing biotic vs. abiotic plant problems.
C. Recommend cultural requirements to reduce pesticide use.
D. Develop strategy for reducing pesticide resistance.
E. Identify the role and control of weeds in pest management.
F. Identify new products used in pesticide management.

**3. Special Facilities and/or Equipment -**

A. Lecture room with multimedia video/audio equipment.
B. Exterior area in which to observe garden pests.

**4. Course Content (Body of knowledge) -**

A. Beneficial soil building.
    1. Good soil structure and texture.
    2. Correct soil chemistry.
    3. Chemicals that lead to poor soil.
    4. Developing a sound soil/food web.
B. Develop strategy for diagnosing biotic vs. abiotic plant problems.
    1. Develop problem-solving strategy for determining problem.
    2. Derive logical solutions to problem determination.
    3. Develop solution for problem.
C. Cultural requirements to reduce pest use.
    1. Soil management.
    2. Treatments by organism classification.
D. Develop strategy for reducing pesticide resistance.
    1. Alternatives to chemical controls.
    2. Prevention methods.
E. Identify the role and control of weeds in pest management.
    1. Identify beneficial weeds for gardens.
    2. Identify problem weeds.
    3. List controls for problems weeds.
F. Identify products used in pesticide management.
    1. Standard pest control tools and materials.
    2. New developments in pest control.
    3. Selection and use of existing/new controls.

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Written exams.
B. Presentation on course topics.

**7. Representative Text(s) -**

California Department of Pesticide Regulations Laws and Regulations Study Guide. 2nd ed. Sacramento, CA: State of California, 2011.

This is a seminal document developed by the State of California and is required for licensure.

**8. Disciplines -**

Ornamental Horticulture

**9. Method of Instruction -**

A. Lecture from instructor.
B. Lecture from guest speakers.
C. Demonstrations of technical topics.
D. Discussion with groups and students in class.
E. Observation of participatory demonstrations.

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading 15-30 pages per week from assigned text.
B. Reading handouts and website material.
C. Web and library research.

**13. Need/Justification -**

This course is available for students seeking continuing education to maintain their Pesticide Certification with the State of California.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** HORT 400B

**Course Title:** Pest Management: Pest Control

**Credit Status:**

_____ Credit course
X Noncredit course

**Catalog Description**:

This course will introduce students to the polyphagous shot hole borer as a means to biological control through predators. Additional topics include differentiating insects and exploring alternatives to pesticide use in lawn. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

X The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

_____ Transfer

X Workforce/CTE
_____ 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 attached to this form or provided in the box below.

| |
|---|
| Course will be used for continuing education for individuals attempting to maintain pesticide licensure. Workers are required to renew their license every two years, and HORT 400A/B/C will fulfill that need. For more information, refer to the California Department of Pesticide Regulation website: https://www.cdpr.ca.gov/docs/license/conted.htm |

**Criteria C. Curriculum Standards (please initial as appropriate)**

_____ The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** David Sauter **Date:** 6/29/18

**Division Curriculum Representative:** Lisa Schultheis **Date:** 10/16/18

**Date of Approval by Division Curriculum Committee:** 10/16/18

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Biological and Health Sciences

## HORT 400B PEST MANAGEMENT: PEST CONTROL — Summer 2020

**6 hours lecture. This course meets 1 time per quarter.** **.5 Units**

**Total Contact Hours:** 6 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 18 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** .5 **Lab Hours:** 0 **Weekly Out of Class Hours:** 1

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Unlimited Repeatability.

**Criteria:** This course will continually update content based on current use of biological controls.

**Status -**

**Course Status:** Active **Grading:** No Credit

**Degree Status:** Non-Applicable **Credit Status:** Non-Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 10-13-18

**Division Dean Information -**

**Seat Count:** 35 **Load Factor:** .008 **FOAP Code:** 114000141091010900

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

This course will introduce students to the polyphagous shot hole borer as a means to biological control through predators. Additional topics include differentiating insects and exploring alternatives to pesticide use in lawn. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**2. Course Objectives -**

The student will be able to:

A. Describe the polyphagous shot hole borer.
B. Identify damage from polyphagous shot hole borer.
C. Identify harmful pests.
D. Identify beneficial pests.
E. Develop alternatives to pesticide use in a lawn.

**3. Special Facilities and/or Equipment -**

A. Lecture room with multimedia video/audio equipment.
B. Exterior area in which to observe garden pests.

**4. Course Content (Body of knowledge) -**

A. Description of the polyphagous shot hole borer.
    1. Identification of insect.
    2. Description of habitat.
    3. Identification of insect residuals.
B. Damage from polyphagous shot hole borer.
    1. Identification of damage created by insect.
    2. Description of damage from insect occupation.
C. Identification of harmful pests.
    1. Listing of harmful horticultural pests.
    2. Identification of harmful horticultural pests.
D. Identification of beneficial pests.
    1. Listing of beneficial horticultural pests.
    2. Identification of beneficial horticultural pests.
E. Identifying alternatives to pesticide use in a lawn.
    1. Turf pesticide alternatives.
    2. Identification of current turf pesticides.
    3. Identification of biological and bio-rational alternatives to pesticides in lawns.

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Written exams.
B. Presentation on course topics.

**7. Representative Text(s) -**

California Department of Pesticide Regulations Laws and Regulations Study Guide. 2nd ed. Sacramento, CA: State of California, 2011.

This is a seminal document developed by the State of California and is required for licensure.

**8. Disciplines -**

Ornamental Horticulture

**9. Method of Instruction -**

A. Lecture from instructor.
B. Lecture from guest speakers.
C. Demonstrations of technical topics.
D. Discussion with groups and students in class.
E. Observation of participatory demonstrations.

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading 15-30 pages per week from assigned text.
B. Reading handouts and website material.
C. Web and library research.

**13. Need/Justification -**

This course is available for students seeking continuing education to maintain their Pesticide Certification with the State of California.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** HORT 400C

**Course Title:** Pest Management: Working With Pesticides

**Credit Status:**

_____ Credit course
X Noncredit course

**Catalog Description**:

This course will address current topics in proper pesticide selection and handling. Topics will include reading and understanding a pesticide label, pesticide formulations and pesticide worker safety and use of personal protective equipment. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

X The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

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- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

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

### Criteria A. Appropriateness to Mission

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Please indicate how your course supports the Foothill College Mission (select all that apply):

_____ Transfer

X Workforce/CTE
_____ 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 attached to this form or provided in the box below.

| |
|---|
| Course will be used for continuing education for individuals attempting to maintain pesticide licensure. Workers are required to renew their license every two years, and HORT 400A/B/C will fulfill that need. For more information, refer to the California Department of Pesticide Regulation website: https://www.cdpr.ca.gov/docs/license/conted.htm |

**Criteria C. Curriculum Standards (please initial as appropriate)**

_____ The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** David Sauter **Date:** 6/29/18

**Division Curriculum Representative:** Lisa Schultheis **Date:** 10/16/18

**Date of Approval by Division Curriculum Committee:** 10/16/18

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Biological and Health Sciences

**HORT 400C PEST MANAGEMENT: WORKING WITH PESTICIDES** **Summer 2020**

**6 hours lecture. This course meets 1 time per quarter.** **.5 Units**

**Total Contact Hours:** 6 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 18 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** .5 **Lab Hours:** 0 **Weekly Out of Class Hours:** 1

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Unlimited Repeatability.

**Criteria:** Each offering of this course will cover new methods of personal protection and updated rules and regulations regarding equipment use.

**Status -**

**Course Status:** Active **Grading:** No Credit

**Degree Status:** Non-Applicable **Credit Status:** Non-Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 10-3-18

**Division Dean Information -**

**Seat Count:** 35 **Load Factor:** .008 **FOAP Code:** 114000141091010900

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

This course will address current topics in proper pesticide selection and handling. Topics will include reading and

understanding a pesticide label, pesticide formulations and pesticide worker safety and use of personal protective equipment. This course may satisfy requirements for those students seeking continuing education for pesticide applicator licensure.

**2. Course Objectives -**

The student will be able to:

A. Read and comprehend a pesticide label.
B. Understand and calculate pesticide formulations.
C. Identify and use personal protective equipment.
D. Reduce personal protective equipment violations.

**3. Special Facilities and/or Equipment -**

A. Lecture room with multimedia video/audio equipment.
B. Exterior area in which to observe garden pests.

**4. Course Content (Body of knowledge) -**

A. Reading and comprehending a pesticide label.
    1. Defining terms of pesticide labels.
    2. Comprehending values and measurements on pesticide labels.
    3. Understanding cautions on pesticide labels.
B. Understanding and calculating pesticide formulations.
    1. Defining pesticide delivery methods.
    2. Calculating pesticide quantities.
C. Identification and use of personal protective equipment.
    1. Listing required personal protective equipment for pesticide application.
    2. Describing proper use of personal protective equipment for pesticide application.
    3. Demonstrating proper use of personal protective gear.
D. Personal protective equipment violations.
    1. Listing the most common violations of pesticide law regarding use of personal protective equipment.
    2. Identifying corresponding punishment for failure to follow law.
    3. Identifying individual responsible for verifying proper use of personal protective equipment when using pesticides.

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Written exams.
B. Presentation on course topics.

**7. Representative Text(s) -**

California Department of Pesticide Regulations Laws and Regulations Study Guide. 2nd ed. Sacramento, CA: State of California, 2011.

This is a seminal document developed by the State of California and is required for licensure.

**8. Disciplines -**

Ornamental Horticulture

**9. Method of Instruction -**

A. Lecture from instructor.
B. Lecture from guest speakers.
C. Demonstrations of technical topics.
D. Discussion with groups and students in class.
E. Observation of participatory demonstrations.

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading 15-30 pages per week from assigned text.
B. Reading handouts and website material.
C. Web and library research.

**13. Need/Justification -**

This course is available for students seeking continuing education to maintain their Pesticide Certification with the State of California.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 101

**Course Title:** Structured Cabling Essentials

**Credit Status:**

_X_ Credit course
___ Noncredit course

**Catalog Description**:

Covers the essentials in structured cabling, including telephony, industry standards, performance, and wiring.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

_X_ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

___ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

___ Transfer
_X_ Workforce/CTE
___ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 101 STRUCTURED CABLING ESSENTIALS** **Summer 2020**

**15 hours total: 9 hours lecture, 6 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .023 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

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**1. Description -**

Covers the essentials in structured cabling, including telephony, industry standards, performance, and wiring.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. State the purpose of the TIA/EIA Standards
B. Identify the elements of a structured cabling wiring system
C. Define the term "permanent link"
D. Define the term "channel"
E. Explain the "category" system for rating cables, connectors, permanent links and channels
F. Explain why twisting a pair reduces its susceptibility to noise pickup
G. State the benefit of using a different twist length for each pair in a 4-pair UTP cable
H. Terminate a 25 UTP cable
I. Terminate a UTP patch panel

**3. Special Facilities and/or Equipment -**

A. Cable pulling raceway, 66 termination blocks, 110 termination blocks, 8P8C modular termination and crimp tool, TIA/EIA certified testing equipment.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Telephony
    1. History (Lec)
    2. Wiring (Lec)
    3. Telephone basics (Lec)
B. Structured Cabling
    1. Standards (Lec)
    2. Performance (Lec)
    3. Cables and connectors (Lec)
    4. Pathway and spaces (Lec)
    5. Grounding and bonding (Lec)
    6. Configuring and installing (Lec)
    7. Testing (Lec)
C. Structured Cabling Lab
    1. Cable pulling (Lab)
    2. 66 block termination (Lab)
    3. 110 block termination (Lab)
    4. 8P8C modular plug termination (Lab)
    5. Configuring certified testers (Lab)

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of quizzes and tests
B. Classroom and laboratory project participation
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). Configuring and Installing Structured Cabling Systems. MD: NJATC Publishers, 2009.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture

B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using shielded and unshielded twisted pair cables.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Configuring and Installing Structured Cabling Systems Chapter 3: Unshielded Twisted Pair Cables
    2. Read Configuring and Installing Structured Cabling Systems Chapter 11: Standards Compliant Cabling Transmission and Test Requirements
B. Writing assignments:
    1. Explain how the twisting of pairs reduces the coupling of noise from other pairs
    2. Describe the differences between testing a permanent link vs. channel test

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within the structured cabling field as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 105

**Course Title:** Fiber 1

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers safety involved with optical cable, optical cable terms, communications over optical cable, fiber optic cable types, bandwidth performance, the effects of attenuation, fiber optic termination, splices, and types of connectors.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE

_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 105 FIBER 1** **Summer 2020**

**15 hours lecture total.** **1 Unit**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .023 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers safety involved with optical cable, optical cable terms, communications over optical cable, fiber optic cable types, bandwidth performance, the effects of attenuation, fiber optic termination, splices, and types of connectors.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Define "fiber optics"
B. Explain the differences between outside plant and premises fiber optics
C. Identify some advantages of fiber optics
D. Describe how optical fiber is used in communication systems
E. Identify safety concerns when working with optical fiber
F. Explain how optical fiber transmits light
G. Distinguish types of fiber
H. Discuss the difference between "step-index" and "graded index" multimode optical fiber
I. Discuss fiber link power budget
J. Explain how optical fiber transmits light
K. Distinguish types of fiber
L. Recognize the physical characteristics of various types of fibers
M. Discuss fiber performance specifications
N. Identify the types of fiber optic cables and their applications
O. Explain how absorption relates to the wavelength used to transmit signals over optical cable
P. Explain the difference between modal and chromatic dispersion
Q. Identify the difference between connectors and splices
R. Describe the requirements for connectors and splices
S. Describe connector styles
T. Identify splice types
U. Describe splicing procedures

**3. Special Facilities and/or Equipment -**

A. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction
    1. What is fiber optics?
    2. Fiber, copper, or wireless?
    3. Standards facilitating fiber applications
B. Safety
    1. Issues when working with fiber
C. Terms (Jargon)
D. Communications
    1. Why use fiber
    2. Fiber optic communication networks
    3. Other applications for fiber
E. Cables
    1. Design overview
    2. What are optical fibers?
    3. Fiber types and sizes
F. Bandwidth
    1. Fiber specifications
    2. Components of dispersion
G. Attenuation
    1. Absorption
    2. Scattering
H. Connectors or Splices
    1. Joints or terminations
I. Performance Specifications
    1. Optical loss
    2. Reflectance
J. Connectors
    1. Styles of fiber optic connectors
    2. Specialty fiber optic connectors
    3. Connector construction
K. Connector Termination Procedures
    1. Single-mode terminations
    2. Adhesive terminations
    3. Non-adhesive terminations
L. Splices

1. Fusion splices
2. Mechanical splices

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). Reference Guide to Fiber Optics. MD: NJATC Publishers, 2013.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
   1. Read Reference Guide to Fiber Optics Chapter 4: Link Power Budget
   2. Read Reference Guide to Fiber Optics Chapter 5: Optical Fiber
   3. Read Reference Guide to Fiber Optics Chapter 7: Attenuation

B. Writing assignments:
   1. Describe what a "link power budget" is and how it is determined
   2. Describe the difference between "step-index" and "graded index" and what is improved in transmission when graded index is used
   3. List the most widely used fiber connectors and explain which connector you would use for new fiber installations and why
   4. Describe the biggest cost factors affecting connector installation and explain what you think the biggest challenges for installers/technicians have terminating fiber in the field (optional)
   5. Explain what issues or concerns you should consider when fusion splicing in the field (optional)

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within the fiber optic cabling and terminations as it pertains to the Sound and Communication Industry.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 106

**Course Title:** Fiber 2

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers fiber optic transmission, testing, networks, installation and testing practices.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

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**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 106 FIBER 2** **Summer 2020**

**17 hours total: 8 hours lecture, 9 hours laboratory.** **.5 Units**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .026 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers fiber optic transmission, testing, networks, installation and testing practices.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

Advisory: ITSC 105.

**2. Course Objectives -**

The student will be able to:

A. Recognize components used in transceivers
B. Describe types of sources and detectors used in transceivers
C. Recognize the instruments used in fiber optic testing
D. Describe how to perform basic fiber optic testing
E. Identify components needed for a network
F. Discuss how an optical loss test set functions
G. Prepare fiber optic cabling for termination
H. Install breakout/fanout kit
I. Terminate an anaerobic fiber connector
J. Terminate a Unicam connector using the Unicam tool
K. Apply and operate a mechanical fiber splice
L. Apply and operate an optical fiber fusion splice
M. Operate an optical power loss test set
N. Operate an optical time domain reflectometer (OTDR)

**3. Special Facilities and/or Equipment -**

A. Fiber optic cable (OSP, distribution), fiber connectors, Corning Unicam tool, specialty fiber optic stripers and cleavers, optical fusion splicers, proper testing equipment (visual fault locator, optical loss test set, optical time domain reflectometer).
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Fiber Optic Transmission (Lec)
    1. Fiber optic data links
    2. Sources for fiber optic transmitters
    3. Detectors for fiber optic receivers
    4. Specialty fiber optic transmission components
    5. Data link performance and link power budget
B. Fiber Optic Testing (Lec)
    1. Fiber optic tests
    2. Visual inspection
    3. Power measurements
    4. Testing optical power
    5. Testing optical loss or insertion
    6. OTDR testing
C. Fiber Optic Networks (Lec)
    1. Transmission equipment
    2. Components
    3. Link loss budget
D. Fiber Optic Hands-on Lab (Lab)
    1. Fiber optic strip and prep
        a. Access fibers for various cable types
            1. Outside plant cable
            2. Distribution cable
        b. Cleaning
    2. Anaerobic connector
        a. Process
        b. Scribe and polish
    3. Unicam connector
        a. Process
        b. Index matching gel
        c. Unicam tool
    4. Mechanical splice
        a. Process
        b. Index matching gel
    5. Fusion splice
        a. Process
        b. Splice protectors
    6. Testing

a. VFL - visual fault locator
b. Optical loss test set - power meter
c. Optical time domain reflectometer (OTDR)

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). Reference Guide to Fiber Optics. MD: NJATC Publishers, 2013.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using fiber optical cables.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
   1. Read Reference Guide to Fiber Optics Chapter 4: Analog or Digital
   2. Read Reference Guide to Fiber Optics Chapter 8: Testing Optical Loss or Insertion Loss
   3. Read Reference Guide to Fiber Optics Chapter 9: Media Options: Copper, Fiber, or Wireless
B. Writing assignments:
   1. Describe the difference between analog signals and data signals. Include which signal type is best for transmission over fiber optics
   2. Explain how an optical loss test set works and what it is used for. Include which testing method is most often used for testing an installed fiber optic plant and why
   3. Explain which media option you would install for a premises cabling installation (copper, fiber, or wireless). Include examples of why you would choose that particular media

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within the fiber optic cabling and terminations as it pertains to the Sound and Communication Industry.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 110

**Course Title:** Electrical Theory Essentials

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the basics of electrical circuits, how electricity works, how to calculate and measure voltage, current, resistance and power in a series and/or parallel circuit.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

## ITSC 110 ELECTRICAL THEORY ESSENTIALS — Summer 2020

**26 hours total: 12 hours lecture, 14 hours laboratory.** **1 Unit**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .039 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers the basics of electrical circuits, how electricity works, how to calculate and measure voltage, current, resistance and power in a series and/or parallel circuit.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Describe the basic structure of the atom
B. Describe the relationship between the valence electrons and electron movement
C. Describe the units of measurement of current, voltage, resistance, and power
D. Demonstrate knowledge of the units ampere, volt, ohm, and watt by giving examples of their usage
E. Explain the electron theory of current flow versus conventional current flow
F. Solve electrical problems using Ohm's law
G. Describe circuit concepts of open, closed, and short circuits
H. Determine the current flow scenarios for open, closed, and short circuits
I. Name the components of the AC sine wave
J. Calculate the root mean square (RMS), peak amplitude, peak-to-peak values, period, frequency, and average values of AC
K. Define inductance
L. Define impedance
M. Define capacitance

**3. Special Facilities and/or Equipment -**

A. Electrical theory trainer boards/components/digital multimeters.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. DC Theory (Lec)
    1. Introduction
    2. Elemental electricity
        a. Voltage
        b. Current
        c. Resistance
        d. Power
    3. Circuit theory and switches
    4. Ohm's law
    5. Series circuit
    6. Parallel circuit
B. DC Lab (Lab)
    1. Series and parallel circuit lab
        a. Meter use
        b. Calculate and measure resistance
        c. Calculate and measure voltage
        d. Calculate and measure current
        e. Calculate and measure power
C. AC Theory (Lec)
    1. Introduction
    2. Production of a sine wave
    3. Inductors
    4. Inductive reactance
    5. Impedance
    6. Capacitors
    7. Capacitive reactance
D. AC Lab (Lab)
    1. AC theory labs
        a. Calculate and measure inductive reactance
        b. Calculate and measure capacitive reactance

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). DC Theory. 3rd ed. MD: NJATC Publishers, 2010.
National Joint Apprenticeship and Training Committee (NJATC). AC Theory. 3rd ed. MD: NJATC Publishers, 2011.

NOTE: These are the standard Sound & Communications textbooks/workbooks used for this course. Although one or more may not be within 5 years of the required published date, they are the most current books used when teaching this course. We will adopt the next edition of each text, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the building and testing of electrical circuits using electrical theory trainers.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read DC Theory pp. 42-45: Electrical Properties of Materials
    2. Read AC Theory pp. 29-33: AC Sine Wave Measurements regarding Peak-to-Peak, Root Mean Square, and Average Value
B. Writing assignments:
    1. Explain in your own words how the number of electrons in the valence ring affects how materials conduct electricity. Provide examples
    2. You will find that most equipment and voltage ratings are based using the Root Mean Square (RMS) values. Describe in your own words how RMS compares to a DC voltage and why it is typically used for voltage values

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in electrical theory. These skills are essential for installation and troubleshooting electrical systems. Electrical theory knowledge is also required for California State Certifications (VDVT and Fire Life Safety).

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 113

**Course Title:** Master Clocks

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the theory and installation of a master clock system. Lessons include: types of clocks, wired clocks, wireless clocks, clock syncing, and advanced clocks.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

## ITSC 113 MASTER CLOCKS — Summer 2020

**9 hours total: 6 hours lecture, 3 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active
**Grading:** Letter Grade with P/NP option
**Degree Status:** Applicable
**Credit Status:** Credit
**Degree or Certificate Requirement:** Stand Alone Course
**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:**
**Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .014 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**
**Distance Learning:** no
**Stand Alone Designation:** no
**Program Title:**
**Program TOPs Code:**
**Program Unique Code:**
**Content Review Date:**
**Former ID:**

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**1. Description -**

Covers the theory and installation of a master clock system. Lessons include: types of clocks, wired clocks, wireless clocks, clock syncing, and advanced clocks.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Identify types of clocks
B. Describe how the clock correction circuit works
C. Identify different types of wireless clocks
D. Identify new advancements in clocks
E. Install a wired clock system
F. Install a wireless clock system
G. Configure a master clock controller to send clock correction signals
H. Configure a master clock controller to activate a wireless relay

**3. Special Facilities and/or Equipment -**

A. Master clock console/secondary clocks.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
B. Types of Clocks (Lec)
    1. Battery
    2. Auto adjust
    3. Radio (NIST)
    4. AC powered
    5. PoE clocks
    6. Analog/digital
    7. Wired synchronized
    8. Wireless synchronized
C. Wired Clocks (Lec)
    1. Correction signal - master clock
    2. AR-2
    3. Frequency generated
    4. 3-wire synchronous clock
    5. Troubleshooting
D. Wireless Clocks (Lec)
    1. Battery powered
    2. Broadcast signal - transmitters
    3. Antenna location
E. Time Sync (Lec)
    1. NIST
    2. CDMA
    3. GPS
    4. Ethernet
F. Advanced Clocks (Lec)
    1. PoE
    2. WiFi
G. Hands-on Lab (Lab)
    1. Install wired clocks to master clock
    2. Install wireless clock
    3. Install wireless relay
    4. Configure master IP address
    5. Program clock event to activate wireless relay

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Handouts and/or worksheets provided by course instructor.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using wired clock, wireless clock and a master clock.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read "American Time Universal Master Manual, Master/Secondary Clock Protocols" handout by American Time
    2. Read "Training on Wired Clocks - Terminology and Operation Clarification" worksheet by T. Nelson of American Time
B. Writing assignments:
    1. In your own words, explain what clock "correction protocol" is and how it works
    2. In your own words, explain the operation and correction method of the three wire sync system

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the field of master clocks. These skills are essential for installation and troubleshooting master clock systems.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 114

**Course Title:** Nurse Call Systems

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the theory and installation of a nurse call system. Lessons include: components, ancillary systems, and working in a healthcare environment.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ Basic Skills

**Criteria B. Need**

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Evidence may be attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 114 NURSE CALL SYSTEMS** **Summer 2020**

**12 hours total: 6 hours lecture, 6 hours laboratory.** **.5 Units**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .018 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers the theory and installation of a nurse call system. Lessons include: components, ancillary systems, and working in a healthcare environment.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Describe the codes and regulating bodies that govern the health care industry
B. Define general terms, titles, and acronyms used in the health care industry
C. Identify the core devices of a nurse call system
D. Interpret specific wiring diagrams

**3. Special Facilities and/or Equipment -**

A. Nurse call system and components, including patient stations, emergency stations, and dome lights for hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
    1. What is a nurse call system?
    2. Intent and function
    3. Codes and regulations
    4. Tone and audio visual systems
    5. Microprocessor and multiplexed systems
B. Components (Lec)
    1. Nurse master station
    2. Duty and staff stations
    3. Patient station
    4. Auxiliary device
    5. Dome lamps
C. Ancillary Systems (Lec)
    1. Staff presence systems
    2. Pagers
    3. Signage
    4. Wireless phones
D. Working in a Health Care Environment (Lec)
    1. Risks
    2. Preventative measures
E. Nurse Call Hands-on Lab (Lab)
    1. Install nurse call cabling and components completing a nurse call system

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

None

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using proper cabling and nurse call equipment.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Writing assignment:
1. Based off of your previous lessons, explain in your own words how you could apply the installation skills to other proprietary nurse call systems

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the field of Nurse Call. These skills are essential for installation and troubleshooting nurse call systems.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 115

**Course Title:** Computer Literacy 1 (Microsoft Word & Excel)

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the fundamentals of Microsoft Word and Excel; how to navigate the software, write, edit, format, create spreadsheets and use formulas.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 115 COMPUTER LITERACY 1 (MICROSOFT WORD & EXCEL)** **Summer 2020**

**12 hours total: 6 hours lecture, 6 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .018 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

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**1. Description -**

Covers the fundamentals of Microsoft Word and Excel; how to navigate the software, write, edit, format, create spreadsheets and use formulas.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Navigate the ribbon
B. Describe how to change the font
C. Demonstrate how to insert a picture
D. Explain how to insert a shape
E. Demonstrate using a number format
F. Insert a table
G. Demonstrate how to save and print a document

**3. Special Facilities and/or Equipment -**

A. Computer lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Word
    1. Introduction (Lec)
    2. Saving (Lec and Lab)
        a. Desktop/local file vs. network drive
        b. Folder vs. file
        c. Creating folders
        d. Renaming folders
        e. Save/Save As
    3. Edit text (Lec and Lab)
        a. Undo/Redo
        b. Cut
        c. Copy
        d. Paste
        e. Find/Replace
    4. Format Text (Lec and Lab)
        a. Font
        b. Color
        c. Size
        d. Style
    5. Creating bulleted lists (Lec and Lab)
    6. Creating numbered lists (Lec and Lab)
    7. Layout (Lec and Lab)
        a. Portrait vs. landscape
    8. Printing (Lec and Lab)
B. Excel
    1. Introduction (Lec)
        a. Similarities to Word
    2. Data entry (Lec and Lab)
        a. Auto fill
    3. Formulas (Lec and Lab)
        a. Sum
        b. Product
        c. Etc.
    4. Formatting (Lec and Lab)
        a. Cell height
        b. Cell width
        c. Merged cells
    5. Views (Lec and Lab)
        a. Normal
        b. Page break
        c. Page layout
        d. Freeze panes
    6. Worksheets (Lec and Lab)
        a. New worksheet
        b. Renaming worksheet
    7. Printing (Lec and Lab)

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Handouts and/or worksheets provided by course instructor.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Computer lab

**10. Lab Content -**

A. Work individually and in teams with Microsoft Word and Excel.
B. Students will create Word documents and Excel spreadsheets.
C. Students will demonstrate their skills completing Microsoft Word and Excel lab exercises.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Microsoft Word lab exercise worksheet; follow directions
    2. Read Microsoft Excel lab exercise worksheet; follow directions
B. Writing assignments:
    1. Create a Word document that could be used to convey instructions for a specific task on a jobsite
    2. Create an Excel spreadsheet that would be useful to track a work-related item, such as jobsite hours, individual hours, task completions, or materials

**13. Need/Justification -**

This course is designed for installers/technicians to learn Microsoft Word and Excel fundamentals to write industry correspondence, such as letters, requests for information, and documentation, and to create spreadsheets.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 123

**Course Title:** Fire Alarm Essentials

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the essentials of fire alarm systems, including fundamentals, general requirements, fire alarm circuits, and wiring.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 123 FIRE ALARM ESSENTIALS** **Summer 2020**

**21 hours total: 6 hours lecture, 15 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .032 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

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**1. Description -**

Covers the essentials of fire alarm systems, including fundamentals, general requirements, fire alarm circuits, and wiring.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Explain the basic types of fire alarm systems
B. Explain circuit types
C. Locate and refer to codes and standards relevant to fire alarm systems
D. Explain the various signal types
E. Describe the methods of monitoring system integrity
F. Describe requirements for primary and secondary power supplies
G. Describe the installation requirements for smoke detectors
H. Describe the installation requirements for heat detectors
I. Describe the installation requirements for waterflow initiating devices
J. Describe the installation requirements for manual fire alarm boxes
K. Describe the installation requirements for supervisory initiating devices
L. Explain the general requirements of notification appliances

**3. Special Facilities and/or Equipment -**

A. Fire alarm system panel and components for hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
    1. History of fire alarm systems
B. Fundamentals (Lec)
    1. Basic types of fire alarm systems
    2. Circuit types
    3. Codes and standards
C. General Requirements (Lec)
    1. Qualifications
    2. Listed equipment
    3. Wiring
    4. Documentation
    5. Signals and signal types
    6. Monitoring for integrity
    7. Power supplies
D. Initiating Devices (Lec)
    1. Alarm signal initiating devices
    2. Supervisory signal initiating devices
    3. Device operating theory
    4. Installation and spacing requirements
E. Notification Appliances (Lec)
    1. Mounting
    2. Audible signaling
    3. Visible signaling
F. Wiring and Wiring Methods (Lec)
    1. Workmanship
    2. Non-powered-limited and power-limited fire alarm circuits
    3. Circuit integrity cable
    4. Class A circuits
    5. Class B circuits
    6. Class X circuits
G. System Interfaces and Safety Control Features (Lec)
    1. Combination systems
    2. Sprinkler system attachments
    3. Elevator safety functions
    4. Smoke control
    5. HVAC shutdown
H. Fire Alarm Lab (Lab)
    1. Construct a small fire alarm system in a lab environment

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). Fire Alarm Systems. MD: NJATC Publishers, 2017.
National Fire Protection Association, Inc. (NFPA 70). National Electrical Code 2017. MA: NFPA Publishers, 2017.
National Fire Protection Association, Inc. (NFPA 72). National Fire Alarm & Signaling Code. MA: NFPA Publishers, 2016.

NOTE: These are the standard Sound & Communications textbooks/workbooks used for this course. Although one or more may not be within 5 years of the required published date, they are the most current books used when teaching this course. We will adopt the next edition of each text, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using shielded, and unshielded twisted pair cables.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Fire Alarm Systems pp. 18-19: Circuit Types
    2. Read Fire Alarm Systems pp. 40-46: Monitoring for Integrity
B. Writing assignments:
    1. Describe the difference between an signaling line circuit (SLC) and an initiating device circuit (IDC). Use examples of when you would use an SLC instead of an IDC and vice versa
    2. Describe how monitoring of an SLC is different from the monitoring of an IDC or NAC. Explain which circuit requires an end of line resistor and why or why not

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest codes/standards and practices within the fire alarm system field as it pertains to the Sound and Communication Industry.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 125

**Course Title:** Paging Systems

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the essentials of paging systems, including functionality, components and how to wire/install.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 125 PAGING SYSTEMS** **Summer 2020**

**9 hours total: 6 hours lecture, 3 hours laboratory.** **.5 Units**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .014 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers the essentials of paging systems, including functionality, components and how to wire/install.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Identify the components associated with paging systems
B. Explain the function of a paging system
C. Describe the difference between a constant voltage system and a self-amplified system
D. Explain how a constant voltage system works
E. Explain how the power ratings of an amplifier are important
F. Explain the difference between direct connection and transformer connection
G. Explain how sound masking systems work
H. Install a paging speaker in a ceiling tile with proper seismic support

**3. Special Facilities and/or Equipment -**

A. Paging system lab, to include paging amplifier, various speakers, wiring, and microphone.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
B. Transformers (Lec)
    1. Primary and secondary
    2. Step-up
    3. Step-down
    4. Power transfer
C. Amplifiers (Lec)
    1. Construction
    2. Inputs
    3. Mixer
    4. Output terminals
    5. Classes
    6. Power
D. Speakers (Lec)
    1. Transducer
    2. Construction
    3. Phase
    4. Types
    5. Frequency response
    6. Taps
E. Impedance (Lec)
    1. Impedance matching
    2. Wattage
    3. Impedance bridge
F. Ambient Noise (Lec)
    1. dB
    2. SPL weighting
    3. 3dB and 6dB rules
G. Volume Controls (Lec)
    1. Attenuators
    2. Impedance changes
    3. Logarithmic
    4. Audio taper
H. Sources (Lec)
    1. Microphones
    2. Music source
    3. Recorder
I. Zone Paging (Lec)
    1. Groups
J. Sound Masking (Lec)
    1. Privacy/concentration
    2. White noise
    3. Pink noise
    4. Reduce intelligibility of speech
K. Paging System Lab (Lab)
    1. Seismic support
    2. Speaker install

3. System wiring
4. Install volume controls
5. Test and commission system

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Handouts and/or worksheets provided by course instructor.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices using shielded, and unshielded twisted pair cables.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read lab guide and follow directions
B. Writing assignments:
    1. Complete the lab handout by filling in the answers and completing the summary

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within the paging system field as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 127

**Course Title:** CATV/DAS

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the basic structure, cabling, tools, connectors and terminations, hardware, headend equipment and testing of a Closed Antenna Television and Distributed Antenna Systems (CATV/DAS) system.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 127 CATV/DAS** **Summer 2020**

**12 hours total: 7 hours lecture, 5 hours laboratory.** **.5 Units**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .018 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers the basic structure, cabling, tools, connectors and terminations, hardware, headend equipment and testing of a Closed Antenna Television and Distributed Antenna Systems (CATV/DAS) system.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Identify coaxial cable types
B. Describe the effects of attenuation over coaxial cable
C. Identify tools used in CATV/DAS
D. Identify types of connectors
E. Describe the installation steps to install a RG6 compression connector
F. Describe the installation steps to install a Heliax connector
G. Identify CATV/DAS headend equipment

**3. Special Facilities and/or Equipment -**

A. CATV/DAS cabling, connectors, special installation tools, and testing equipment.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. CATV - Introduction (Lec)
B. CATV - History (Lec)
    1. CRT
    2. Antennas
C. CATV - Basic Structure (Lec)
    1. Provider
    2. Backbone
    3. Distribution
D. CATV - Cabling (Lec and Lab)
    1. Series 59
    2. Series 6
    3. Series 11
    4. Hardline
    5. Impedance
    6. Attenuation
E. CATV - Tools (Lec and Lab)
    1. Lopper cutter
    2. Crimpers
    3. Compression crimpers
    4. Coax stripers
    5. Coring tool
F. CATV - Connectors and Termination (Lab)
    1. Screw-on
    2. Crimp
    3. Compression
G. CATV - Distribution Hardware (Lec)
    1. Amplifiers
    2. Splitters
    3. Directional taps
    4. Antennas
H. CATV - Headend Equipment (Lec)
    1. Demodulators
    2. Modulators
    3. Combiners
I. CATV - Testing (Lec and Lab)
    1. Loop testing
    2. Balancing
    3. Field strength meter
    4. TV
J. CATV - Hands-on Lab (Lab)
    1. Install RF connector
    2. Install cabling to TVs
    3. Test and commission
K. DAS - History (Lec)
    1. Relation to CATV
    2. Coaxial systems
L. DAS - Types and Signal Sources (Lec)
    1. Signal source

2. Distributed system

M. DAS - Installation (Lec and Lab)
    1. Cable types
    2. Connectors

N. DAS - Commissioning and Testing (Lec and Lab)
    1. Testing equipment
    2. Certification

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

None

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices/coaxial cable.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read discussion titled "CATV - Antennas"; follow directions and complete discussion
B. Writing assignments:
    1. Complete the discussion topic "CATV - Antennas" by writing down your results and include and whether you would install an antenna or not and why

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within the Closed Antenna Television and Distributed Antenna Systems as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 128

**Course Title:** Network Video

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers basic networking, components, and installation of network video systems.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 128 NETWORK VIDEO** **Summer 2020**

**21 hours total: 14 hours lecture, 7 hours laboratory.** **1 Unit**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .032 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers basic networking, components, and installation of network video systems.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Identify various network architectures
B. Identify various network hardware
C. Describe the most basic components needed for a CCTV system
D. Identify major components for a network video system
E. Explain various video compression technologies
F. Describe what PoE is and what it does

**3. Special Facilities and/or Equipment -**

A. Networking equipment and IP cameras as needed during hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Basic Networking (Lec)
    1. Introduction
    2. Binary, bit, byte
    3. OSI module
    4. Networking components
    5. Switches
    6. PoE classes
    7. TCP/IP
    8. IP addressing
    9. Troubleshooting techniques
B. Network Video (Lec)
    1. Introduction
    2. Evolution
    3. Components
    4. Network cameras
    5. Camera technologies
    6. Thermal cameras
    7. Video compression technologies
    8. Video encoders
    9. Installation
    10. Network bandwidth
C. Network Video Lab (Lab)
    1. Network installation
    2. IP camera installation

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

National Joint Apprenticeship and Training Committee (NJATC). Network Technologies. MD: NJATC Publishers, 2016.
Nilsson, Fredrik, Axis Communications. Intelligent Network Video. New York: Taylor & Francis Group, 2017.

NOTE: These are the standard Sound & Communications textbooks/workbooks used for this course. Although one or more may not be within 5 years of the required published date, they are the most current books used when teaching this course. We will adopt the next edition of each text, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Intelligent Network Video: section 9.6 (pg. 165)
    2. Read Intelligent Network Video: section 17.1.3 (pg. 301)
B. Writing assignments:
    1. In your own words, explain PoE and what it does; include the benefits of using PoE
    2. Describe the difference between recognition and identification. Include the range of pixels required. Describe a feature that some cameras have that makes it easier to tell if you have the correct resolution for identification

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within network video systems as it pertains to the Sound and Communication Industry.

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# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 130

**Course Title:** Intrusion Systems

**Credit Status:**

_X_ Credit course
___ Noncredit course

**Catalog Description**:

Covers the applicable standards, preventing false alarms, components, wiring and installation of intrusion systems.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

_X_ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

___ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

___ Transfer
_X_ Workforce/CTE
___ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

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**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 130 INTRUSION SYSTEMS** **Summer 2020**

**12 hours total: 8 hours lecture, 4 hours laboratory.** **.5 Units**

**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .018 | 115000142215095640 |

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Covers the applicable standards, preventing false alarms, components, wiring and installation of intrusion systems.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Describe the purpose of an intrusion system and statistics associated with burglary
B. Identify the components of an intrusion system
C. Identify specifications for magnetic contacts
D. Identify various different magnetic contacts and the applications they can be used for
E. Describe the difference between a closed loop and an open loop configuration
F. Identify various types of motion detectors

**3. Special Facilities and/or Equipment -**

A. Intrusion cabling and equipment for hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
    1. What is an intrusion system?
    2. Types of systems used today
B. Applicable Standards (Lec)
    1. NFPA 70
    2. NFPA 72
    3. NFPA 730
    4. NFPA 731
C. Fundamentals (Lec)
    1. Protection strategies
    2. Intrusion system monitoring
    3. Detection/wiring configurations
    4. False alarms
D. Sensors and Input Devices (Lec)
    1. Magnetic contact design
    2. Types of magnetic contacts
    3. Motion detectors
    4. Glass break detectors
E. Control Panels and Keypads (Lec)
    1. Panel connections
    2. Keypads
F. Hands-on Intrusion Lab (Lab)
    1. Build small scale intrusion system

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Handouts and/or worksheets provided by course instructor.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Lesson 10: "False Alarms - What is and what isn't"
    2. Read Lesson 15 regarding Motion Detectors
B. Writing assignments:
    1. Describe why false alarms are a major issue with intrusion systems and include methods used to reduce them
    2. Explain the difference between a passive and an active motion detector. Include why and where you would use both types of motion detectors

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within intrusion systems as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

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Per our local process, the same process of review and approval is used for noncredit Stand Alone courses.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 131

**Course Title:** Access Control Systems

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers the categories, components, credentials, types of locks, wiring and installation of access control systems.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

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

### Criteria A. Appropriateness to Mission

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Please indicate how your course supports the Foothill College Mission (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

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**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Apprenticeship

**ITSC 131 ACCESS CONTROL SYSTEMS** **Summer 2020**

**9 hours total: 6 hours lecture, 3 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .014 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

---

**1. Description -**

Covers the categories, components, credentials, types of locks, wiring and installation of access control systems.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Explain the purpose of access control
B. Identify the components of an electronic access control system
C. Describe different types of credential readers and their applications
D. Describe different types of credentials and their advantages and disadvantages
E. Define terms such as: credentials, authentication and verified
F. Describe the common types of electronic and electromagnetic locks

**3. Special Facilities and/or Equipment -**

A. Access control cabling and equipment for hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
    1. What is an access control system?
B. Categories (Lec)
    1. What you have
    2. What you know
    3. What you are
C. Components (Lec)
    1. Server/computer
    2. Control panel
    3. Readers
    4. Electric locks
    5. Door switches
    6. Request to exit
D. Server Configuration (Lec)
    1. Central
    2. Distributed
E. Credentials (Lec)
    1. Keypads
    2. Cards
    3. Biometrics
F. Electric Locks (Lec)
    1. Magnetic
    2. Electric strike
    3. Electric lockset
    4. Electric dead bolt
G. Control Panel (Lec)
    1. Intro to VistaKey for hands-on lab
H. Access Control Hands-on Lab (Lab)

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Norman, Thomas L. Electronic Access Control. Cambridge, MA: Butterworth-Heinemann Publishers, 2017.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Electronic Access Control pg. 49: "Electrified Locks"
    2. Read Electronic Access Control pp. 101-103
B. Writing assignments:
    1. In your own words, describe the two basic types of electrified locks from a safety standpoint. Include examples of where you would use each type
    2. After reading Electronic Access Control pp. 101-103 regarding Security vs. Life Safety, summarize in your own words the importance of understanding the building codes/standards as an installer

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the latest standards and practices within intrusion systems as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 132

**Course Title:** Audio Visual Essentials

**Credit Status:**

__X__ Credit course
_____ Noncredit course

**Catalog Description**:

Covers analog and digital signals, basics of sound, microphones, amplifiers, speakers, video signals, and projection technology.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

__X__ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
__X__ Workforce/CTE
_____ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 132 AUDIO VISUAL ESSENTIALS** **Summer 2020**

**18 hours total: 12 hours lecture, 5 hours laboratory.** **1 Unit**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

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**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

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**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .027 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

---

**1. Description -**

Covers analog and digital signals, basics of sound, microphones, amplifiers, speakers, video signals, and projection technology.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Describe sound waves, sine waves, and the electrical representation of sound
B. Describe the function of transducers
C. Describe the various types of microphones used for sound reinforcement
D. Describe the components of a loudspeaker
E. Identify the pinout of an XLR connector
F. Describe the basics of computer signals
G. Identify the progression of higher resolution video signals

**3. Special Facilities and/or Equipment -**

A. Audio visual cabling and equipment for hands-on lab.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
B. Analog and Digital Signals (Lec)
    1. Processing and sampling
    2. Bit depth
    3. Bit rate
    4. Compression
C. Basics of Sound and How the Ear Works (Lec)
    1. Frequency
    2. Phase
    3. Acoustics
D. Microphones (Lec)
    1. Types
    2. Elements
E. Audio Signal Levels (Lec)
    1. Mic
    2. Line
    3. Loudspeaker
F. Loudspeakers (Lec)
    1. Crossovers
    2. Sensitivity
    3. Frequency response
    4. Impedance
G. Video (Lec)
    1. Units of light measure
    2. Ambient light
    3. Video signals
    4. Digital video signals
    5. Display and projection technology
    6. Aspect ratio
    7. Projected image
H. Audio Visual Lab (Lab)

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Grimes, Brad. CTS Certified Technology Specialist Exam Guide. 2nd ed. New York, NY: McGraw-Hill Education, 2013.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will

adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration
D. Lab

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignments:
    1. Read Certified Technology Specialist pp. 45-46: "The Inverse Square Law and Sound"
    2. Read Certified Technology Specialist pp. 87-91: on video signals and bandwidth
B. Writing assignments:
    1. Describe the effects of doubling your distance from the source of the sound and how that affects the level of the sound and why
    2. In your own words, describe what bandwidth is and how bandwidth is in relation to video quality

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in the essentials of audio visual systems as it pertains to the Sound and Communication Industry.

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ITSC 134

**Course Title:** Blueprints, LEED, Title 24

**Credit Status:**

_X_ Credit course
___ Noncredit course

**Catalog Description**:

Covers reading blueprints, Leadership in Energy and Environmental Design (LEED), and energy efficiency standards.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

_X_ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

___ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

**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 (select all that apply):

___ Transfer
_X_ Workforce/CTE
___ 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 attached to this form or provided in the box below.

Please see attached Telecommunications Line Installers and Repairers labor market information in California Report.

In addition, these classes are going to be used for our installer/technicians for continuing education hours for use in the California State VDV and Fire/Life Safety certifications. Below is information from the Department of Industrial Relations/California Apprenticeship Council regarding Electrical Certification:

**§291.5. Renewal and Replacements**

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

**Criteria C. Curriculum Standards (please initial as appropriate)**

M.S. The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Michael Sheriff **Date:** 9/25/19

**Division Curriculum Representative:** Brian Murphy **Date:** 10/16/19

**Date of Approval by Division Curriculum Committee:** 10/16/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

# Apprenticeship

**ITSC 134 BLUEPRINTS, LEED, TITLE 24** **Summer 2020**

**9 hours total: 6 hours lecture, 3 hours laboratory.** **.5 Units**

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**Total Contact Hours:** 0 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 0 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

| Lecture Hours: | Lab Hours: | Weekly Out of Class Hours: |
|---|---|---|

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

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**Repeatability -**

**Statement:** Not Repeatable.

---

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

---

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 6/21/19

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**Division Dean Information -**

| Seat Count: | Load Factor: | FOAP Code: |
|---|---|---|
| 50 | .014 | 115000142215095640 |

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**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

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**1. Description -**

Covers reading blueprints, Leadership in Energy and Environmental Design (LEED), and energy efficiency standards.

Prerequisite: Completion of recognized sound and communication apprenticeship or equivalent and recent employment as an installer/technician in the sound and communication industry.

**2. Course Objectives -**

The student will be able to:

A. Scale a drawing accurately
B. Differentiate between extension lines and dimension lines
C. Describe the function of plans and elevations
D. Describe the function of sections and details
E. Describe the purpose of the LEED program
F. Identify the LEED certification levels
G. Describe the purpose of Title 24

**3. Special Facilities and/or Equipment -**

A. Blueprint (Building drawings), architectural rulers.
B. When taught via Foothill Global Access, on-going access to email software and hardware; email address.

**4. Course Content (Body of knowledge) -**

A. Introduction (Lec)
B. Blueprint Reading (Lec and Lab)
    1. Site plans
    2. Floor plans
    3. Elevations
    4. Sections
    5. Schedules and specifications
    6. Symbols
    7. Scaling
C. LEED (Lec)
    1. Credits
    2. Certifications
    3. Value
D. Title 24 (Lec)
    1. Energy efficiency
    2. California Energy Code
    3. California Green Building Standards Code

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Results of assessments
B. Results of quizzes and tests
C. Discussion participation

**7. Representative Text(s) -**

Blueprint Reading for Electricians. 3rd ed. MD: National Joint Apprenticeship and Training Committee, 2010.

NOTE: This is the standard Sound & Communications textbook/workbook used for this course. Although it may not be within 5 years of the required published date, it is the most current book used when teaching this course. We will adopt the next edition, as it is published.

**8. Disciplines -**

Telecommunication Technology

**9. Method of Instruction -**

A. Lecture
B. Group discussion
C. Demonstration

**10. Lab Content -**

A. Work individually and in teams with basic tools of the trade, test instruments and tool safety.
B. Included will be the installation of sound and/or communication devices.
C. Equipment safety and safe handling practices are reviewed and applied.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading assignment:
    1. Read Blueprint Reading for Electricians pp. 88-98
B. Writing assignments:
    1. Describe what floor plans are and how they are used by an electrical worker
    2. In your own words, describe how sections are used. Include how looking at a section drawing would benefit an electrical worker

**13. Need/Justification -**

This course is designed for installers/technicians to keep current in blueprint reading, LEED, and Title 24 as it pertains to the Sound and Communication Industry.

California Occupational Guides

*Detailed Guide for*

# Telecommunications Line Installers and Repairers in California

**May also be called:** Cable Pullers; Cable Splicers; Cable Technicians; Fiber Optic Technicians; Line Installer-Repairers; Lineworkers; Outside Plant Technicians; Premises Technicians

## *What Would I Do?*

Every time you download an online video, access a social networking site, watch cable television at home, or use a landline telephone at work you are connecting to complex networks of lines and cables that connect people with the outside world. Telecommunications Line Installers and Repairers are some of the people who make these networks possible.

Line Installers and Repairers install, maintain, and repair the lines and cables used by telephone, Internet and cable companies. These companies provide services such as cable television, Internet access, and other communications networks. These services require a variety of different types of cables, such as copper wires and fiber optic cables. Unlike copper wire that can carry electrical signals, fiber optic cables are made of glass or plastic and transmit signals using light. As telecommunication companies continue to provide larger amounts of bandwidth and expand broadband access to their customers, fiber optic cables are the preferred method of data transmission. Working with fiber optics requires special skills, such as splicing and terminating optical cables.

Line Installers are workers who install new cable. They may work for construction contractors or telecommunications companies. They generally start a new job by digging trenches or erecting poles which will carry the cables. They use a variety of construction equipment, including digger derricks, which are trucks equipped with augers and cranes used to dig holes in the ground and set poles in place. Line Installers also use trenchers, cable plows, and borers, which are used to cut openings in the earth for the laying of underground conduits or cables. Once the infrastructure is in place, Line Installers install cable onto poles, through conduit, and directly in trenches to the demarcation point where the outside cables are terminated. Some Line Installers run cables inside of buildings or connect a series of buildings on the same premises which may involve installing conduit or cable trays, as well as racks for equipment or other network hardware. During and after installation is completed, cables are tested to ensure the installation was done properly.

Line Repairers work for utilities and telecommunications companies that maintain existing lines. Maintenance needs are identified through remote monitoring equipment and customer reports of service outages. Many of these workers, sometimes called Line Installer-Repairers, have installation

duties in addition to their repair duties. When a problem is reported, Line Repairers must identify its cause and fix it. This usually involves knowledge of telecommunications technology and the use of special testing equipment. Workers may also replace cables that are aging, outdated, or damaged. Storms and other natural disasters, as well as rodents gnawing through unprotected cables, can cause extensive damage to networks of lines. When a connection goes out, Line Repairers must work quickly to restore service to customers. In order to work on poles, workers usually use bucket trucks to elevate themselves to the top of a structure, although all Lineworkers must be adept at climbing poles when necessary. Workers use special safety equipment to keep them from falling when climbing utility poles.

**Tools and Technology**

Telecommunications Line Installers and Repairers use test equipment specific to copper and fiber optic networks as well as a variety of tools in the course of their work including cable cutting, stripping, and splicing tools. They also use shears, tampers, saws, levels, screwdrivers, cable reels, bucket trucks, derricks, and trenching machines. In addition, they use customer relationship management (CRM) and enterprise resource planning (ERP) software programs.

**Important Tasks and Related Skills**

Each task below is matched to a sample skill required to carry out the task.

| Task | Skill Used in this Task |
|---|---|
| Inspect and test lines and cables, recording and analyzing test results, to assess transmission characteristics and locate faults and malfunctions. | Quality Control Analysis |
| Splice cables, using hand tools, epoxy, or mechanical equipment. | Arm-Hand Steadiness |
| Measure signal strength at utility poles, using electronic test equipment. | Telecommunications |
| Set up service for customers, installing, connecting, testing, and adjusting equipment. | Installation |
| Access specific areas to string lines and install terminal boxes, auxiliary equipment, and appliances, using bucket trucks, or by climbing poles and ladders or entering tunnels, trenches, or crawl spaces. | Multilimb Coordination |
| String cables between structures and lines from poles, towers, or trenches and pull lines to proper tension. | Manual Dexterity |
| Lay underground cable directly in trenches, or string it through conduits running through trenches. | Extent Flexibility |
| Use a variety of construction equipment to complete installations, including digger derricks, trenchers, and cable plows. | Equipment Selection |

Source: U.S. Department of Labor Occupational Information Network (O*NET) at online.onetcenter.org

## *Working Conditions*

The work of Line Installers and Repairers can be physically demanding. Lineworkers should be comfortable working at great heights while maintaining balance in addition to using their upper body

strength. They should be able to work within confined spaces, such as underground tunnels, while stooping or kneeling. The ability to lift a minimum of 50 pounds and easily identify differences between color-specific wires are additional physical requirements of the job. A California driver license is often necessary since the job requires workers to drive utility vehicles and travel long distances. Some Installers are independent contractors who travel from job site to job site.

Constructing and maintaining both ground and aerial infrastructure is typically done year-round, outdoors, and in various weather conditions. Line Installers and Repairers typically work a 40-hour workweek. They may be required to work overtime or on weekends in cases of emergency such as aerial line damage caused by extreme weather. During an emergency repair, physical and mental fatigue may occur due to long work hours and sustained activity.

Line Installers and Repairers must follow safety procedures to minimize potential hazards. In accordance with the Division of Occupational Safety and Health (DOSH), they wear safety equipment when entering utility holes and descending into trenches. To prevent injuries from working on poles, they must use fall-protection equipment. They must also follow proper safety guidelines when using equipment and operating heavy machinery. Many employers provide tools and uniforms, but it is not uncommon for workers to purchase their own.

Many workers and apprentices belong to unions such as the International Brotherhood of Electrical Workers and Communications Workers of America.

## *Will This Job Fit Me?*

For those who enjoy being outside, working closely with others in a team, and completing projects, the job of Telecommunications Line Installer and Repairer may be rewarding. This work would appeal to those who like practical, hands-on tasks, problem solving, and using a variety of tools and equipment.

## *What Wages and Benefits Can I Expect?*

### Wages

The median wage in 2019 for Telecommunications Line Installers and Repairers in California is $70,629 annually, or $33.95 hourly. The median is the point at which half of the workers earn more and half earn less.

| Annual Wages for 2019 | Low (25th percentile) | Median (50th percentile) | High (75th percentile) |
|---|---|---|---|
| California | $46,411 | $70,629 | $86,127 |

Source: EDD/LMID Occupational Employment Statistics Survey, 2019 at www.labormarketinfo.edd.ca.gov/data/wages.html Wages do not reflect self-employment.

| Hourly Wages for 2019 | Low (25th percentile) | Median (50th percentile) | High (75th percentile) |
|---|---|---|---|
| California | $22.31 | $33.95 | $41.41 |

Source: EDD/LMID Occupational Employment Statistics Survey, 2019 at www.labormarketinfo.edd.ca.gov/data/wages.html. Wages do not reflect self-employment.

### Benefits

Line Installers and Repairers may expect to receive paid holidays, vacation, and sick leave, as well as health insurance and pension options. Some employers pay for education and training. The type of benefit package is determined by company policy or union contract. Self-employed contractors are responsible for their own health insurance and pension plan costs.

## *What is the Job Outlook?*

Broadband Internet access is expanding for households and businesses, and telecommunications companies are attempting to provide customers with both telephone and cable broadband technologies by replacing copper wire with fiber optic cables. Installers and Repairers may be needed to build new infrastructure as well as provide maintenance and repair. The majority of job openings will occur due to the need to replace workers who retire, transfer to other occupations, or leave the labor force.

### Projections of Employment

In California, the number of Telecommunications Line Installers and Repairers is expected to remain stable between 2016 and 2026.

**Estimated Employment and Projected Growth**
**Telecommunications Line Installers and Repairers**

| Geographic Area (Estimated Year-Projected Year) | Estimated Employment | Projected Employment | Numeric Change | Percent Change | Job Openings |
|---|---|---|---|---|---|
| California (2016-2026) | 11,300 | 11,300 | 0 | 0.0 | 11,100 |

Source: EDD/LMID Projections of Employment by Occupation at www.labormarketinfo.edd.ca.gov/data/employment-projections.html

## *How Do I Qualify?*

### Education

Most employers prefer to hire an applicant with a high school diploma or equivalent. Vocational training and more advanced two-year associate degree programs in telecommunications, communications, or information technology (IT) provide Line Installers and Repairers with classroom instruction and technical knowledge of the equipment and technology used in the field. The Fiber Optic Association (FOA) offers a listing of schools that offer training in fiber optics and premises cabling on their website and a section with advice on finding jobs.

### Experience

Entry-level positions require little or no experience. Line Installers generally enter the field through temporary help agencies or formal union-sponsored apprenticeship programs. Beginning workers typically start as helpers, assisting more experienced Line Installers and Repairers. Advancement to Line Repairer requires several years of on-the-job training and some classroom experience. Some employers recommend two years or more experience for advanced fiber optic installation and repair.

### Early Career Planning

High school students interested in fiber optic telecommunications should take courses in algebra, trigonometry, applied physics, and English.

### Apprenticeship

Union-sponsored apprenticeship programs generally require a high school diploma, GED, or equivalent. Typically, apprenticeship workers are employed to receive pay during normal work hours and attend program courses during the evening. Apprenticeship programs may last 6-18 months or longer. For more information on apprenticeship programs currently available, visit the Communications Workers of America Web site.

### Continuing Education

While continuing education is not currently a requirement, most Telecommunications Line Installer-Repairers keep up to date with the latest developments in the field. Training may be offered by equipment manufacturers on their specific products, and professional associations help improve workers' knowledge and skills.

### Licensing and Certification

A license is required for Telecommunication Line Installers and Repairers who advance to become general contractors.

The State of California Department of Industrial Relations Web site states that certification is not required for persons performing work for licensed low voltage systems employers. However employers usually require a certification for splicing and terminating fiber optics when the worker has limited experience in the field. Many employers include different types of certification as part of on-the-job training. Some certification programs and equipment manufacturers work with companies to offer one-year certificates that emphasize hands-on field work with copper wiring and fiber optics. For more information, go to the U.S. Department of Labor's Career InfoNet Web site at www.acinet.org and scroll down to "Career Tools." Click on "Certification Finder" at www.acinet.org/certifications_new/default.aspx and follow the instructions to locate certification programs.

### Where Can I Find Training?

There are two ways to search for training information at www.labormarketinfo.edd.ca.gov/resources/training-and-apprenticeships.html

- Search by Field of Study to find what programs are available and what schools offer those programs. You may use keywords such as: Telecommunications.
- Search by Training Provider to find schools by name, type of school, or location.

Contact the schools you are interested in to learn about the classes available, tuition and fees, and any prerequisite course work.

## *Where Would I Work?*

The largest industries employing Telecommunications Line Installers and Repairers are as follows:

| Industry Title | Percent of Total Employment for Occupation in California |
|---|---|
| Telecommunications | 51.7% |
| Building Equipment Contractors | 20.8% |

| | |
|---|---|
| Utility System Construction | 13.6% |
| Employment Services | 4.0% |
| Cable and Other Subscription Programming | 2.0% |

Source: EDD/LMID Staffing Patterns at www.labormarketinfo.edd.ca.gov/data/employment-projections.html

## *Finding a Job*

Direct application to employers remains one of the most effective job search methods. Newspaper classified ads and Internet job listings provide local job leads. Check with the Communications Workers of America (CWA) about hiring procedures and apprenticeship programs in the local area. **Online job opening systems** include JobCentral at www.jobcentral.com and CalJOBS$^{SM}$ at www.caljobs.ca.gov.

To find your nearest One-Stop Career Center, go to Service Locator. View the helpful job search tips for more resources. (requires Adobe Reader).

### Yellow Page Headings

You can focus your local job search by checking employers listed online or in your local telephone directory. Below are some suggested headings where you might find employers of Telecommunications Line Installers and Repairers.

- Cable & Satellite Television
- Data Communication Services
- Internet Service Providers (ISP)
- Telecommunication Services
- Telephone Companies

### Find Possible Employers

To locate a list of employers in your area, use "Find Employers" on the LaborMarketInfo Web site at http://www.labormarketinfo.edd.ca.gov/aspdotnet/databrowsing/empMain.aspx?menuChoice=emp

- Select the search for employers by occupation.
- Select a geographic area.
- Search for an occupation by keyword, occupation, or category.
- Select one of the top industries that employ the occupation.
- This will give you a list of employers in that industry in your area.
- Click on "View Filter Selections" to limit your list to specific cities or employer size.
- Click on an employer for the street address, telephone number, size of business, Web site, etc.
- Contact the employer for possible employment.

## *Where Could This Job Lead?*

Increased skills make a Telecommunications Line Installer and Repairer more valuable to the employer. Long-term on-the-job experience may lead to specialty and supervisory positions. Some corporate telecommunications companies may provide opportunities to work in administration, sales, or union representation. Some of the job skills are transferable to wireless and electrical equipment installation and repair. However, additional certification and training may be necessary.

Some Telecommunications Line Installers and Repairers become independent contractors. To advance, these workers should be able to identify and estimate the quantity of materials needed to properly complete a job. In addition, they must be able to accurately estimate how long a job should take to complete and what it will cost. Low voltage systems contractors must be licensed by the California Contractors State Licensing Board.

## *Related Occupations*

Below is a list of occupations related to Telecommunications Line Installers and Repairers.

- Construction Laborers (SOC 47-2061)
- Electrical and Electronics Repairers, Commercial and Industrial Equipment (SOC 49-2094)
- Electrical Power-Line Installers and Repairers (SOC 49-9051)
- Helpers--Electricians (SOC 47-3013)
- Helpers--Installation, Maintenance, and Repair Workers (SOC 49-9098)
- Signal and Track Switch Repairers (SOC 49-9097)
- Telecommunications Equipment Installers and Repairers, Except Line Installers (SOC 49-2022)

## *Other Sources*

- California Department of Consumer Affairs, Contractors State Licensing Board
  www.cslb.ca.gov
- California Department of Industrial Relations, Division of Apprenticeship Standards
  www.dir.ca.gov/das
- Building Industry Consulting Service International (BICSI)
  www.bicsi.org
- Communications Workers of America
  www.cwa-union.org
- Fiber Optic International
  www.fiberopticintl.org
- Fiber to the Home Council
  www.ftthcouncil.org
- International Brotherhood of Electrical Workers
  www.ibew.org
- Telecommunications Industry Association
  www.tiaonline.org
- The Fiber Optic Association
  www.thefoa.org
- The National Coalition for Telecommunications Education and Learning
  www.nactel.org

These links are provided for your convenience and do not constitute an endorsement by EDD.

## *For the Career Professional*

The following codes are provided to assist counselors, job placement workers, or other career professionals.

| System | Code |
|---|---|
| SOC - Standard Occupational Classification at www.bls.gov/soc/ | 49-9052 |

| | |
|---|---|
| O*NET - Occupational Information Network at online.onetcenter.org/ | |
| Telecommunications Line Installers and Repairers | 49-9052.00 |
| Interest Codes (RIASEC) at online.onetcenter.org/find/descriptor/browse/Interests/#cur | REC |
| CIP - Classification of Instructional Programs at nces.ed.gov/pubs2002/cip2000/ | |
| Communications Systems Installation and Repair Technology | 470103 |
| TOP - Taxonomy of Programs at www.ccccurriculum.info/ (California Community Colleges) | |
| Telecommunications Technology | 093430 |

The California Occupational Guides are a product of:
The California Employment Development Department
Labor Market Information Division
www.labormarketinfo.edd.ca.gov

Printed on Wednesday, September 25, 2019

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** BUSI 12

**Course Title:** Introduction To Data Analytics & Business Decisions

**Credit Status:**

_X_ Credit course
___ Noncredit course

**Catalog Description**:

This course is an overview of data analytics and their use in making business decisions, covering a broad selection of topics along the life-cycle of data analytics (business objective; data collection, cleansing, transformation; data analysis, data visualization/storytelling; data-based decision making). Professional skills, such as communication, presentation, and data storytelling, will be presented. Students will acquire a basic working knowledge of data analytics through hands-on projects and study in a variety of business, engineering, social sciences, or life sciences domains. Issues of ethics, leadership, and teamwork will be highlighted.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

___ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

_X_ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

Data Analytics Certificate

- 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?)

Currently in development, anticipated approval Spring 2020

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

X Transfer
X Workforce/CTE
_____ 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 attached to this form or provided in the box below.

| |
|---|
| LMI Data attached |

**Criteria C. Curriculum Standards (please initial as appropriate)**

X The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Laurence Lew **Date:** 10/23/19

**Division Curriculum Representative:** K. Allison Meezan **Date:** 10/29/19

**Date of Approval by Division Curriculum Committee:** 10/29/19

**College Curriculum Co-Chairperson:** _____ **Date:** _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Business and Social Sciences

## BUSI 12 INTRODUCTION TO DATA ANALYTICS & BUSINESS DECISIONS — Winter 2020

**4 hours lecture.** **4 Units**

**Total Contact Hours:** 48 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 144 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** 4 **Lab Hours:** 0 **Weekly Out of Class Hours:** 8

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade Only

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** UC/CSU **Validation:** 9/23/19

**Division Dean Information -**

**Seat Count:** 50 **Load Factor:** .100 **FOAP Code:** 114000121031050600

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

This course is an overview of data analytics and their use in making business decisions, covering a broad selection of topics along the life-cycle of data analytics (business objective; data collection, cleansing, transformation; data analysis, data visualization/storytelling; data-based decision making). Professional skills, such as communication, presentation, and data storytelling, will be presented. Students will acquire a basic working knowledge of data analytics through hands-on projects and study in a variety of business, engineering, social sciences, or life sciences domains. Issues of ethics, leadership, and teamwork will be highlighted.

**2. Course Objectives -**

The student will be able to:

A. Describe data analytics/science and its applicability to business decision making
B. Apply basic data analytics methods to business decision making
C. Describe and perform basic data collection, manipulation, and preparation techniques using standard data analytics software
D. Describe standard data analytics techniques used to identify insights, including data visualization, data storytelling, exploratory data analysis
E. Present analysis insights based on standard data analytic practices

**3. Special Facilities and/or Equipment -**

None.

**4. Course Content (Body of knowledge) -**

A. Introduction to Data and Business Analytics
    1. Data, big data, information
    2. Definition of data analytics, data science
    3. Uses of data and data analytics in business
    4. Survey of popular data analytics tools
    5. Comparative descriptions of job roles that work with data and analytics
B. Business Framing in Analytics
    1. Data requirements, data sourcing, data collection
    2. Business types and their interest in analytics
    3. Business data analytics stakeholder analysis
    4. Business data analytics stakeholder matrix
    5. Business objective definition
    6. Business objective to data solution mapping
    7. Methods to communicate data analytic findings in business vs. non-business context
C. Data Preparation
    1. Data analytic tool fundamentals
        a. Tool structure and functionality
        b. Integration to external data source
        c. Static data vs. dynamic data
        d. Absolute vs. relative references
        e. Data paste, imputation, and filtering
        f. Data cleaning best practices
        g. Data cleaning and Null values
        h. Merging and joining multiple datasets
D. Introduction to Data Visualization and Data Storytelling
    1. Chart creation
        a. Column chart
        b. Line chart
        c. Scatter chart
        d. Combination chart
        e. Sparklines
    2. Univariate, bivariate, and multivariate data visualizations
    3. Tufte's 5 Data Graphic Principles of data visualization
    4. Data storytelling principles
E. Descriptive Statistics
    1. Data variable types (continuous vs. discrete, nominal vs. ordinal)
    2. Measures of center in statistics, e.g., mean, median, and mode
    3. Measures of spread in statistics, such as range, quartiles/interquartile range, standard deviation, variance
    4. Descriptive statistics (SUM/COUNT, SUMIF/COUNTIF, SUMPRODUCT, etc.)
    5. Statistics-based data visualizations
F. Exploratory Data Analysis
    1. Exploratory Data Analysis (EDA) definition
    2. Applications of EDA to business insights
    3. EDA-supported data visualizations
G. Communicating Data Insights
    1. Data visualization communication planning and messaging
    2. Data insight design principles
    3. Data storytelling best practices

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Formative Activities and Assessments
B. Critical Thinking Assessments
C. Summative Assessments
D. Class Project
E. Discussion

**7. Representative Text(s) -**

Riche, Hurter, Diakopoulos, and Carpendale. Data-Driven Storytelling. CRC Press, 2018.
Provost and Fawcett. Data Science for Business. O'Reilly Media, 2013.
Nussbaumer Knafic. Storytelling with Data: A Data Visualization Guide for Business Professionals. Wiley, 2015.

**8. Disciplines -**

Business

**9. Method of Instruction -**

A. Lectures
B. Discussions
C. Activities
D. Problem-based learning
E. Case studies
F. Collaborative learning/peer review
G. Demonstration/modeling
H. Performance-based assessments

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading Assignments:
    1. Selected textbook readings (approx. 40 pages per week)
    2. Articles
        a. Example article: Scherbak, "Is data science a science: What to expect from your first data science project", Medium, March 12, 2019.
    3. Case studies
    4. Web research

**13. Need/Justification -**

This course will be included on the certificate of achievement in Data Analytics, which is currently in development.

C·O·E
CENTERS OF EXCELLENCE
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# Data/Business Analytics Occupations Labor Market Information Report Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
February 2019

## Recommendation

Based on all available data, it is difficult to determine if there is an unmet need for Data/Business Analytics workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand "gap analysis" is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section below) and the supply data from the TOP code selected by Foothill College – Business Administration (TOP 0505.00), is a program of study that would be preparing students for not only Data/Business Analytics Occupations, but also for a cluster of occupations more traditionally aligned with Business Administration. Therefore it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment in a Data/Business Analytics occupation (i.e. Business Intelligence Analysts).

This report also provides student outcomes data on employment and earnings for programs on TOP 0505.00 - Business Administration in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

## Introduction

This report profiles Data/Business Analytics Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new Data/Business Analytics program at Foothill College. The best available occupation aligned with Data/Business Analytics is Business Intelligence Analysts (SOC 15-1199.08).

However, the challenge is that labor market data is not available for the SOC code 15-1199.08 (Business Intelligence Analysts). It is listed under the "umbrella" SOC code of 15-1199.00 (Computer Occupations, All Other) as one of 12 "emerging occupations", and so the demand for Business Intelligence Analysts would be overstated and not a very accurate expression of demand if labor market data for "Computer Occupations, All Other" was used.

In addition, the education level required for employment as a Business Intelligence Analysts is very high, with 96% of the job postings that list an educational requirement for this occupation listing a Bachelors degree or higher in the job ad. So, many community college students who completed a 12-18 unit Data/Business Analytics certificate, would not be qualified for this occupation, unless they already had a Bachelor's degree and were looking to add new skills to increase their employability in the labor market. In fact, Foothill College reports that 20% - 30% of their student population already have Bachelors degrees, hence the proposed Data/Business Analytics Certificate could serve this student population who already have a four-year degree.

Job Postings data (from Burning Glass) supports strong demand for Business Intelligence Analysts, with over 11,000 job postings annually in the Bay region and about 4,450 job postings annually in the Silicon Valley sub-region, at all education levels. For the job postings in the Bay region, there are annually 5,595 job postings listed as requiring a Bachelor's degree or less. Of the job postings in the sub-region, there are annually 1,939 job postings listed as requiring a Bachelor's degree or less. This seems to indicate demand for Business Intelligence Analysts at this education level, using job postings data.

- **Computer Occupations, All Other (SOC 15-1199): All** computer occupations not listed separately. Excludes "Computer and Information Systems Managers" (11-3021), "Computer Hardware Engineers" (17-2061), "Electrical and Electronics Engineers" (17-2070), "Computer Science Teachers, Postsecondary" (25-1021), "Multimedia Artists and Animators" (27-1014), "Graphic Designers" (27-1024), "Computer Operators" (43-9011), and "Computer, Automated Teller, and Office Machine Repairs" (49-2011).
  *Entry-Level Educational Requirement: Bachelor's degree*
  *Training Requirement: None*
  *Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%*

## Occupational Demand

**Table 1. Employment Outlook for Data/Business Analytics Occupations in Bay Region**

| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
|---|---|---|---|---|---|---|---|---|
| Computer Occupations, All Other | 19,731 | 21,972 | 2,242 | 11% | 9,101 | 1,820 | $26.99 | $53.32 |

*Source: EMSI 2019.1*
**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 Data/Business Analytics Occupations in Silicon Valley Sub-Region**

| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
|---|---|---|---|---|---|---|---|---|
| Computer Occupations, All Other | 7,032 | 7,936 | 904 | 13% | 3,348 | 670 | $26.64 | $58.88 |

*Source: EMSI 2019.1*
**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 (Feb 2018 - Jan 2018)**

| Occupation | Bay Region | Silicon Valley |
|---|---|---|
| Business Intelligence Analysts | 11,134 | 4,447 |

*Source: Burning Glass*

**Table 4. Top Job Titles for Data/Business Analytics Occupations for latest 12 months (Feb 2018 - Jan 2018)**

| Common Title | Bay | Silicon Valley | Common Title | Bay | Silicon Valley |
|---|---|---|---|---|---|
| Data Analyst | 3,807 | 1,178 | Director, Analytics | 54 | 9 |
| Sap Consultant | 773 | 520 | Head, Data, Science | 52 | 24 |
| Business Intelligence Analyst | 659 | 257 | Sap Consultant, Information And Technology Industry | 47 | 36 |
| Business Data Analyst | 367 | 146 | Salesforce Project Manager | 46 | 16 |
| Business Analyst | 333 | 122 | Quantitative Analyst | 45 | 0 |
| Sap Fico Consultant | 175 | 138 | Analytics Manager | 44 | 17 |
| Business Intelligence Manager | 144 | 257 | Business Intelligence Director | 43 | 14 |
| Data Quality Analyst | 144 | 80 | Business Intelligence/Data Warehousing | 43 | 12 |
| Reports Analyst | 116 | 39 | Operations Analyst | 39 | 7 |

| | | | | | |
|---|---|---|---|---|---|
| Sap Functional Consultant | 84 | 56 | Senior Sap Consultant | 37 | 25 |
| Sap Abap Consultant | 79 | 63 | Performance Analyst | 36 | 7 |
| Analytics Consultant | 71 | 12 | Data Steward | 35 | 17 |
| Business Consultant | 71 | 33 | Performance Architect | 34 | 25 |
| Data Specialist | 58 | 20 | Analytics Engineer | 33 | 10 |

*Source: Burning Glass*

## Industry Concentration

**Table 5. Industries hiring Data/Business Analytics Workers in Bay Region**

| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
|---|---|---|---|---|
| Custom Computer Programming Services (541511) | 3,897 | 3,970 | 13% | 19.8% |
| Computer Systems Design Services (541512) | 2,287 | 2,290 | 10% | 11.4% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 1,558 | 1,632 | 34% | 8.2% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 1,605 | 1,583 | (2%) | 7.9% |
| Software Publishers (511210) | 1,278 | 1,339 | 22% | 6.7% |
| Data Processing, Hosting, and Related Services (518210) | 837 | 901 | 35% | 4.5% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 651 | 685 | 11% | 3.4% |
| Other Computer Related Services (541519) | 580 | 590 | 18% | 2.9% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 299 | 312 | (4%) | 1.6% |
| Temporary Help Services (561320) | 257 | 256 | 5% | 1.3% |
| Electronic Computer Manufacturing (334111) | 238 | 242 | 3% | 1.2% |
| Administrative Management and General Management Consulting Services (541611) | 225 | 234 | 24% | 1.2% |
| Local Government, Excluding Education and Hospitals (903999) | 205 | 206 | 5% | 1.0% |
| Colleges, Universities, and Professional Schools (611310) | 194 | 196 | 7% | 1.0% |

*Source: EMSI 2019.1*

**Table 6. Top Employers Posting Data/Business Analytics Occupations in Bay Region and Silicon Valley Sub-Region (Feb 2018 - Jan 2018)**

| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
|---|---|---|---|---|---|
| Deloitte | 130 | Agile Enterprise Solutions, Inc | 25 | Google Inc. | 99 |
| Google Inc. | 122 | Ascent | 24 | Apple Inc. | 98 |
| Wells Fargo | 103 | Infoobjects Inc | 24 | Deloitte | 57 |
| Apple Inc. | 99 | Akorbi Workforce Solutions | 23 | Stanford University | 48 |
| Accenture | 88 | Numeric Technologies | 23 | Wipro | 47 |
| Facebook | 84 | Codeforce 360 | 22 | Tranzeal, Inc | 44 |
| IBM | 83 | Connexions Data Inc | 22 | Intuit | 41 |
| Anthem Blue Cross | 70 | Csi Consultant Specialists Inc | 22 | IBM | 39 |
| Wipro | 61 | Redolent, Inc | 22 | Cisco Systems Incorporated | 36 |
| Blue Cross Blue Shield of California | 57 | Amazon | 21 | Techfetch Com | 34 |

| | | | | | |
|---|---|---|---|---|---|
| Stanford University | 53 | BNP Paribas | 21 | Servicenow | 29 |
| Techfetch Com | 53 | Cystems Logic | 21 | Paypal | 27 |
| Intuit | 51 | Gap Inc. | 21 | Intellipro Incorporated | 26 |
| Cisco Systems Incorporated | 47 | Adobe Systems | 20 | Accenture | 25 |
| Tranzeal, Inc | 46 | Cynet Systems | 20 | Anthem Blue Cross | 24 |
| Uber | 41 | Kaiser Permanente | 20 | Numeric Technologies | 22 |
| Republic Bancorp | 37 | Svb Financial Group | 20 | Agile Enterprise Solutions, Inc | 18 |
| Walmart / Sam's | 34 | University Of California San Francisco | 20 | Bramasol Incorporated | 18 |
| Workday, Inc | 34 | Visa | 20 | Vmware Incorporated | 18 |
| Bank of the West | 33 | Cloudious Llc | 19 | Cloudious Llc | 17 |
| Intellipro Incorporated | 32 | Sgic Cloud Technologies Inc | 19 | Connexions Data Inc | 17 |
| Servicenow | 30 | Twitch | 19 | Cystems Logic | 17 |
| Paypal | 28 | Bramasol Incorporated | 18 | Intel Corporation | 17 |
| University California | 27 | Focuskpi Inc | 18 | Sgic Cloud Technologies Inc | 17 |
| K Anand Corporation | 26 | Milestone Technologies Incorporated | 18 | Stanford Health Care | 17 |

***Source: Burning Glass***

## Educational Supply

There are 28 community colleges in the Bay Region issuing 2,199 awards on average annually (last 3 years) on TOP 0505.00 - Business Administration. There are six colleges in the Silicon Valley Sub-Region issuing 726 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0505.00 - Business Administration in the Bay Region**

| College | Sub-Region | Headcount | Associates | Certificates | Total |
|---|---|---|---|---|---|
| Berkeley City College | East Bay | | 22 | | 22 |
| Cabrillo College | Santa Cruz - Monterey | | 51 | | 51 |
| Cañada College | Mid Peninsula | 33 | 38 | 0 | 39 |
| Chabot College | East Bay | | 91 | | 91 |
| City College of San Francisco | Mid Peninsula | | 26 | | 26 |
| College of Alameda | East Bay | | 44 | 1 | 45 |
| College of Marin | North Bay | 149 | 29 | | 29 |
| College of San Mateo | Mid Peninsula | | 79 | | 79 |
| Contra Costa College | East Bay | 317 | 4 | | 4 |
| De Anza College | Silicon Valley | 3,123 | 255 | 31 | 286 |
| Diablo Valley College | East Bay | 2,085 | 191 | 22 | 213 |
| Evergreen Valley College | Silicon Valley | | 122 | | 122 |
| Foothill College | Silicon Valley | | 75 | | 75 |
| Gavilan College | Santa Cruz - Monterey | | 27 | 1 | 29 |
| Hartnell College | Santa Cruz - Monterey | | 65 | | 65 |
| Laney College | East Bay | 93 | 92 | 33 | 126 |
| Las Positas College | East Bay | | 69 | | 69 |
| Los Medanos College | East Bay | | 51 | | 51 |
| Merritt College | East Bay | | 9 | | 9 |
| Mission College | Silicon Valley | | 52 | | 52 |
| Monterey Peninsula College | Santa Cruz - Monterey | 464 | 68 | 3 | 71 |

| | | | | | |
|---|---|---|---|---|---|
| Napa Valley College | North Bay | | 36 | | 36 |
| Ohlone College | East Bay | | 104 | | 104 |
| San Jose City College | Silicon Valley | | 82 | | 82 |
| Santa Rosa Junior College | North Bay | | 145 | | 145 |
| Skyline College | Mid Peninsula | | 86 | 3 | 89 |
| Solano College | North Bay | | 70 | 10 | 80 |
| West Valley College | Silicon Valley | 386 | 103 | 7 | 109 |
| Total | | **6,650** | **2,087** | **112** | **2,199** |
| Sub-region Total | | **3,509** | **688** | **37** | **726** |

*Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

## Gap Analysis

Based on all available data, it is difficult to determine if there is an unmet need for Data/Business Analytics workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand "gap analysis" is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section above) and the supply data from the TOP code selected by Foothill College – Business Administration (TOP 0505.00), is a program of study that would be preparing students for not only Data/Business Analytics Occupations, but also for a cluster of occupations more traditionally aligned with Business Administration. So, it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment in a Data/Business Analytics occupation (i.e. Business Intelligence Analysts).

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0505.00 - Business Administration**

| 2015-16 | Bay (All CTE Programs) | Foothill College (All CTE Programs) | State (0505.00) | Bay (0505.00) | Silicon Valley (0505.00) | Foothill College (0505.00) |
|---|---|---|---|---|---|---|
| % Employed Four Quarters After Exit | 74% | 77% | 63% | 67% | 65% | 36% |
| Median Quarterly Earnings Two Quarters After Exit | $23,396 | $28,725 | $15,781 | $17,406 | $17,855 | $15,009 |
| Median % Change in Earnings | 46% | 82% | 44% | 53% | 50% | n/a |
| % of Students Earning a Living Wage | 63% | 76% | 42% | 41% | 42% | n/a |

*Source: Launchboard Pipeline (version available on 2/13/19)*

## Skills, Certifications and Education

**Table 9. Top Skills for Data/Business Analytics Occupations in Bay Region (Feb 2018 - Jan 2018)**

| Skill | Postings | Skill | Postings | Skill | Postings |
|---|---|---|---|---|---|
| SQL | 5,117 | Data Visualization | 973 | Statistical Analysis | 554 |
| Data Analysis | 5,071 | Key Performance Indicators (KPIs) | 944 | Enterprise Resource Planning (ERP) | 544 |
| Tableau | 2,461 | Data Management | 880 | Data Transformation | 543 |
| Python | 2,444 | SAS | 858 | Data Collection | 514 |
| SAP | 2,135 | Big Data | 779 | Apache Hive | 513 |
| Business Intelligence | 1,898 | Apache Hadoop | 742 | Information Systems | 498 |

| | | | | | |
|---|---|---|---|---|---|
| Project Management | 1,557 | Machine Learning | 740 | Budgeting | 478 |
| Data Warehousing | 1,340 | Salesforce | 735 | Experiments | 476 |
| Data Science | 1,309 | Data Mining | 733 | Spreadsheets | 451 |
| Business Process | 1,203 | Customer Service | 664 | Process Improvement | 447 |
| Data Quality | 1,152 | Data Modeling | 664 | Scheduling | 437 |
| Economics | 1,095 | R | 613 | Quality Assurance and Control | 430 |
| Oracle | 1,060 | Java | 589 | Product Management | 408 |
| Extraction Transformation & Loading | 1,034 | Relational Databases | 587 | Stakeholder Management | 408 |
| Business Analysis | 1,027 | Statistics | 565 | SAP BusinessObjects | 406 |

*Source: Burning Glass*

**Table 10. Certifications for Data/Business Analytics Occupations in the Bay Region (Feb 2018 - Jan 2018)**

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.

| Certification | Postings | Certification | Postings |
|---|---|---|---|
| Certified Public Accountant (CPA) | 143 | Certified Salesforce Administrator | 10 |
| Project Management Certification | 132 | Financial Risk Manager (FRM) | 10 |
| Project Management Professional (PMP) | 69 | Security Clearance | 10 |
| IT Infrastructure Library (ITIL) Certification | 60 | Certified Administrator | 9 |
| Driver's License | 52 | Epic Certification | 9 |
| SAP Certification | 48 | Six Sigma Black Belt Certification | 9 |
| Six Sigma Certification | 28 | Certificate in Investment Performance Measurement (CIPM) | 8 |
| ITIL Certification | 18 | Certified in Production and Inventory Management (CPIM) | 8 |
| Advanced Programmer Certification | 14 | Financial Accounting Standards Board (FASB) | 8 |
| Chartered Financial Analyst (CFA) | 14 | Lean Six Sigma Certification | 8 |
| SAS Certification | 14 | Advanced Business Application Programming Certification | 7 |
| Certified Scrum Trainer (CST) | 12 | Advanced Business Application Programming Certification (ABAP) | 7 |
| Certified Novell Administrator | 11 | Certified Information Privacy Professional (CIPP) | 7 |
| Certified Information Systems Auditor (CISA) | 10 | Certified ScrumMaster (CSM) | 7 |

*Source: Burning Glass*

**Table 11. Education Requirements for Data/Business Analytics Occupations in Bay Region**

Note: 43% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

| Education (minimum advertised) | Latest 12 Mos. Postings |
|---|---|
| High school or vocational training | 165 (3%) |
| Associate Degree | 92 (1%) |
| Bachelor's Degree or Higher | 6,050 (96%) |

*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:

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

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** C S 48A

**Course Title:** Data Visualization

**Credit Status:**

X Credit course
_____ Noncredit course

**Catalog Description**:

Introduction to the effective processing and communication of data. Topics include identifying the key techniques and theory used in data visualization, creating and designing static and interactive visualizations using data, and communicating insight through data visualization to an intended audience. Students will use a data visualization package, such as R, Tableau, or MatPlotLib in Python.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

_____ The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

X The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

Certificate of Achievement in Business and Data Analytics

- 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?)

  Spring 2020

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer

X Workforce/CTE
_____ 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 attached to this form or provided in the box below.

| See Labor Market Information Report attached. |
|---|

**Criteria C. Curriculum Standards (please initial as appropriate)**

RP The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** Eric Reed Date: 10/17/19

**Division Curriculum Representative:** Ron Painter Date: 10/17/19

**Date of Approval by Division Curriculum Committee:** 10/17/2019

**College Curriculum Co-Chairperson:** _____ Date: _____

**Foothill College**
**Submission Course Outlines**

*For Faculty and Staff use only*

# Physical Sciences, Mathematics & Engineering

**C S 48A DATA VISUALIZATION** **Winter 2020**

**4 hours lecture, 2 hours laboratory.** **4.5 Units**

**Total Contact Hours:** 72 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 168 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** 4 **Lab Hours:** 2 **Weekly Out of Class Hours:** 8

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** UC/CSU **Validation:** 9/23/19

**Division Dean Information -**

**Seat Count:** 40 **Load Factor:** .121 **FOAP Code:** 114000125111070700

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** yes

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Introduction to the effective processing and communication of data. Topics include identifying the key techniques and theory used in data visualization, creating and designing static and interactive visualizations using data, and communicating insight through data visualization to an intended audience. Students will use a data visualization package, such as R, Tableau, or MatPlotLib in Python.

Advisory: MATH 10, MATH 17, PSYC 7 or SOC 7.

**2. Course Objectives -**

The student will be able to:

A. Identify the key techniques and theory used in data visualization.
B. Create and design static and interactive visualizations using a data visualization package.
C. Communicate analysis insight through data visualization to an intended audience.

**3. Special Facilities and/or Equipment -**

A. The college will provide access to a computer laboratory with an installed data visualization package.
B. The college will provide a website or course management system with an assignment posting component (through which all lab assignments are to be submitted) and a forum component (where students can discuss course material and receive help from the instructor). This applies to all sections, including on-campus (i.e., face-to-face) offerings.
C. When taught online, the college will provide a fully functional and maintained course management system through which the instructor and students can interact.
D. When taught online, students must have currently existing email accounts and ongoing access to computers with internet capabilities.

**4. Course Content (Body of knowledge) -**

A. Identify the key techniques and theory used in data visualization
    1. Introduction to data visualization
        a. Describe data visualization
        b. Compare descriptions of exploratory versus explanatory data visualizations
        c. Identify Gestalt Principles in visual perception
        d. Describe cognitive load in visual perception to identify cognitive load best techniques
        e. Compare static and dynamic visualizations represented as use cases
        f. Describe effective design in visual perception to identify effective design best techniques
        g. Describe ethical design in visual perception to identify ethical design best techniques
        h. Identify most common graphical representations and their key characteristics
        i. Recognize the context of use for each graphical representation and what approaches are appropriate for each situation
        j. Identify context or setting to properly story-tell with data visualization best practices
        k. Identify plot to properly story-tell using data visualization best practices
        l. Identify message/interpretation to properly story-tell using data visualization best practices
        m. Identify purpose or implications to properly story-tell using data visualization best practices
    2. Introduction to a visualization package, such as R, Tableau, or MatPlotLib
        a. Describe the purpose and applications of the package
        b. Identify and navigate the package environment
        c. Import from an external data source
        d. Develop a basic data object
        e. Apply data visualization customization, such as adding colors, labels, and formatting
        f. Develop a variety of data visualizations, including histograms, bar graphs, box plots, pie charts, scatterplots, etc.
B. Create and design static and interactive visualizations using a data visualization package
    1. Working with data
        a. Prepare data for use in visualization
        b. Merge multiple data sources
        c. Apply data cleaning techniques
            1. Outliers
            2. Bad data
            3. Missing data
        d. Identify distinct data types in imported data
        e. Identify and use different types of data sources:
            1. CSV
            2. Excel
            3. SQL
            4. URL
            5. Other
        f. Develop filtering techniques
        g. Develop table calculation techniques
    2. Interactive design
        a. Apply interactivity of plots with highlight, filter, and URL actions

b. Identify dynamic data visualization best practices
c. Develop dynamic data presentations
d. Identify and develop mapped visualizations
e. Apply custom geocoding to map visualization
f. Develop custom maps
g. Apply background images to map visualizations

C. Communicate analysis insight through data visualization to an intended audience
1. Visual analytics
a. Develop statistical visualizations used in exploratory data analysis
b. Develop trends analytics techniques
c. Develop distributions analytics techniques
d. Develop forecasting analytics techniques
e. Apply mapping techniques
2. Sharing visualizations
a. Identify the value of data visualization in communicating to an intended audience
b. Select most appropriate data visualization for intended outcome
c. Apply design principles, such as eliminating clutter, focusing attention, and thinking like a designer to improve data visualizations
d. Compare the pros and cons of sharing live data versus extracting data

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. Written discussion of concepts on class forums
B. Formative activities, such as quizzes, assignments and graphic organizers
C. Final course project

**7. Representative Text(s) -**

Wilke, Claus. Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures. O'Reilly Media, 2019.

**8. Disciplines -**

Computer Science

**9. Method of Instruction -**

A. Lectures which include motivation for the use of data visualization concepts, example code and visualization objects, and analysis of these products.
B. Online labs (for all sections, including those meeting face-to-face/on campus), consisting of:
1. A programming assignment webpage located on a college-hosted course management system or other department-approved internet environment. Here, the students will review the specification of each programming assignment and submit their completed lab work.
2. A discussion webpage located on a college-hosted course management system or other department-approved internet environment. Here, students can request assistance from the instructor and interact publicly with other class members.
C. Detailed review of programming assignments, which includes model solutions and specific comments on the student submissions.
D. In-person or online discussion which engages students and instructor in an ongoing dialog pertaining to all aspects of designing, implementing and analyzing programs.
E. When course is taught fully online:
1. Instructor-authored lecture materials, handouts, syllabus, assignments, tests, and other relevant course material will be delivered through a college-hosted course management system or other department-approved internet environment.
2. Additional instructional guidelines for this course are listed in the addendum of CS department online practices.

**10. Lab Content -**

A. Navigating the visualization package
1. Installing and running
2. Creating a simple plot
B. Demonstrating visual design principles

1. Identify effective and ineffective use of design principles in sample products
2. Modify sample products to improve effective communication

C. Explanatory data analysis and visualization
1. Create plots from existing datasets
2. Choose from among various representations (scatterplot, histogram, boxplot, etc.) to communicate the data most effectively
3. Apply labels, colors and formatting
4. Apply statistical techniques to summarize the data

D. External data sources
1. Find and download data from a repository
2. Scrape data from web pages
3. Prepare external data for import
    a. Identify and handle missing data
    b. Identity and handle bad data
    c. Identify and handle outliers
4. Import data into the visualization package
5. Merge data from multiple sources

E. Exploratory data analysis
1. Using complex or large datasets, identify correlations between data elements
2. Using complex or large datasets, identify trends in time-series data
3. Using complex or large datasets, produce and analyze predictive models
4. Choose from among various representations (time series, facets, heat map, tree map, etc.) to communicate the data most effectively

F. Geospatial visualization
1. Summarize geotagged data in the context of a map
2. Create a custom geospatial and data-rich object, such as a stadium or parking lot

G. Dynamic visualization
1. Create animated visualizations
2. Create interactive data applications or webpages

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading
1. Textbook assigned reading averaging 30 pages per week
2. Reading the supplied handouts and modules averaging 10 pages per week
3. Reading online resources as directed by instructor though links pertinent to data visualization
4. Reading library and reference material directed by instructor through course handouts

B. Writing
1. Writing to communicate analysis of existing products
2. Writing to document processes used in analyzing and visualizing data
3. Writing to describe trends or correlations found in data

C. Other Projects
1. Plots based on datasets, along with explanatory text
2. Other forms of graphical objects that communicate data

**13. Need/Justification -**

This course will be a required core course for the certificate of achievement in Data Analytics, which is currently in development.

# Data Science Occupations
# Labor Market Information Report
# Foothill College

Prepared by the San Francisco Bay Center of Excellence
for Labor Market Research
February 2019

## Recommendation

Based on all available data, it is difficult to determine if there is an unmet need for Data Science workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand "gap analysis" is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section below) and the supply data from the TOP code selected by Foothill College – TOP 0708.00 - Computer Infrastructure and Support, is a program of study that would be preparing students for not only Data Science Occupations, but a cluster of other occupations more traditionally aligned with Computer Infrastructure and Support. So it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment in a Data Science occupation (i.e. Computer and Information Research Scientist).

This report also provides student outcomes data on employment and earnings for programs on TOP 0708.00 - Computer Infrastructure and Support in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Foothill College and in the region.

## Introduction

This report profiles Data Science Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new Data Science program at Foothill College. The best available occupation aligned with Data Science is "Computer and Information Research Scientists" (SOC 15-1111). The issue is that the education level required for employment is very high - with 90% of workers who are currently employed in this occupation having an education level of Bachelors degree or higher: Bachelors degree (30%), Masters degree (32%), Ph.D. (28%).

Only about 10% of those employed currently in this occupation have less than a Bachelors degree - so many community college students who completed a 12-18 unit certificate, would not be qualified for this occupation, unless they already had a Bachelor's degree and were looking to add new skills to increase their employability in the labor market. In fact, Foothill College reports that 20% - 30% of their student population already have Bachelors degrees, hence the proposed Data Science Certificate could serve this student population who already have a four-year degree.

Job Postings data (from Burning Glass) supports strong demand for this occupation with over 6,700 job postings annually in the region (2018) and 2,700 job postings annually in the Silicon Valley sub-region for Computer and Information Research Scientists, at all education levels. However, the majority of employers posting job ads desire candidates with a Bachelor's degree or higher.

Of the total 6,732 job postings in the Bay region, there are annually 2,138 job postings listed as requiring a Bachelor's degree or less. Of the total 2,732 job postings in the sub-region, there are annually 879 job postings listed as requiring a Bachelor's degree or less. This seems to indicate demand for Computer and Information Research Scientists at this education level, using job postings data.

- **Computer and Information Research Scientists (SOC 15-1111):** Conduct research into fundamental computer and information science as theorists, designers, or inventors. Develop solutions to problems in the field of computer hardware and software.
  *Entry-Level Educational Requirement: Master's degree*
  *Training Requirement: None*
  *Percentage of Community College Award Holders or Some Postsecondary Coursework: 2%*

## Occupational Demand

**Table 1. Employment Outlook for Data Science Occupations in Bay Region**

| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
|---|---|---|---|---|---|---|---|---|
| Computer and Information Research Scientists | 2,729 | 3,168 | 439 | 16% | 1,403 | 281 | $32.12 | $66.58 |

*Source: EMSI 2019.1*
**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 Data Science Occupations in Silicon Valley Sub-Region**

| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
|---|---|---|---|---|---|---|---|---|
| Computer and Information Research Scientists | 1,273 | 1,418 | 145 | 11% | 587 | 117 | $31.16 | $53.58 |

*Source: EMSI 2019.1*
**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 (Feb 2018 - Jan 2018)**

| Occupation | Bay Region | Silicon Valley |
|---|---|---|
| Computer and Information Research Scientists | 6,732 | 2,732 |

*Source: Burning Glass*

**Table 4. Top Job Titles for Data Science Occupations for latest 12 months (Feb 2018 - Jan 2018)**

| Common Title | Bay | Silicon Valley | Common Title | Bay | Silicon Valley |
|---|---|---|---|---|---|
| Data Scientist | 2,045 | 727 | Data Consultant | 33 | 21 |
| Senior Data Scientist | 687 | 232 | Manager, Data, Science | 33 | 15 |
| Machine Learning Scientist | 493 | 299 | Machine Learning Engineer | 28 | 16 |
| Computer Scientist | 207 | 109 | Data Scientist, Information And Technology Industry | 27 | 15 |
| Data Analyst | 125 | 61 | Data Scientist, Python | 26 | 12 |
| Staff Data Scientist | 112 | 54 | Junior Data Scientist | 25 | 4 |
| Lead Data Scientist | 108 | 34 | Senior Manager, Data, Science | 25 | 7 |
| Principal Data Scientist | 90 | 50 | Research Scientist | 21 | 15 |
| Director, Data, Science | 88 | 15 | Associate Data Scientist | 20 | 5 |
| Research Engineer | 81 | 54 | Data Scientist/Engineer | 20 | 4 |
| Data Science Manager | 77 | 14 | Engineering Manager | 19 | 6 |
| Data Scientist, Analytics | 62 | 8 | Chief Data Scientist | 18 | 1 |
| Natural Language Processing Scientist | 50 | 27 | Data Scientist, Learning | 18 | 7 |
| Staff Scientist | 47 | 5 | Senior Research Engineer | 14 | 12 |

*Source: Burning Glass*

## Industry Concentration

**Table 5. Industries hiring Data Science Workers in Bay Region**

| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
|---|---|---|---|---|
| Custom Computer Programming Services (541511) | 448 | 462 | 21% | 16.4% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 395 | 417 | 1% | 14.8% |
| Software Publishers (511210) | 296 | 316 | 29% | 11.2% |
| Computer Systems Design Services (541512) | 270 | 277 | 19% | 9.8% |
| Research and Development in Biotechnology (except Nanobiotechnology) (541714) | 216 | 230 | 47% | 8.2% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 177 | 174 | (2%) | 6.2% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 157 | 166 | 38% | 5.9% |
| Electronic Computer Manufacturing (334111) | 112 | 116 | 10% | 4.1% |
| Colleges, Universities, and Professional Schools (902612) | 83 | 83 | (2%) | 3.0% |
| Other Computer Related Services (541519) | 62 | 64 | 27% | 2.3% |
| Computer and Computer Peripheral Equipment and Software Merchant Wholesalers (423430) | 55 | 53 | (5%) | 1.9% |
| Data Processing, Hosting, and Related Services (518210) | 44 | 46 | 20% | 1.6% |
| Engineering Services (541330) | 43 | 43 | 7% | 1.5% |

*Source: EMSI 2019.1*

**Table 6. Top Employers Posting Data Science Occupations in Bay Region and Silicon Valley Sub-Region (Feb 2018 - Jan 2018)**

| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
|---|---|---|---|---|---|
| Apple Inc. | 189 | Intel Corporation | 25 | Apple Inc. | 186 |
| Facebook | 187 | Lawrence Berkeley National Laboratory | 25 | Walmart / Sam's | 60 |
| Capital Markets Placement | 135 | Sandia Corporation | 25 | Intuit | 59 |
| Walmart / Sam's | 96 | Target | 24 | Adobe Systems | 44 |
| Uber | 90 | Oracle | 22 | Amazon | 41 |
| Intuit | 73 | Samsung America, Inc. | 22 | Google Inc. | 38 |
| Amazon | 61 | KLA-Tencor | 21 | Linkedin Limited | 31 |
| Adobe Systems | 58 | Wework | 21 | Cisco Systems Incorporated | 28 |
| Genentech | 56 | Electronic Arts Incorporated | 20 | SAP | 26 |
| Google Inc. | 51 | Stitch Fix | 20 | Intel Corporation | 25 |
| Accenture | 36 | Autodesk Incorporated | 19 | Target | 24 |
| IBM | 35 | Paypal | 19 | eBay | 23 |
| eBay | 35 | Allstate | 18 | KLA-Tencor | 21 |
| Linkedin Limited | 34 | Capital One | 18 | Samsung America, Inc. | 21 |
| Cisco Systems Incorporated | 32 | Hewlett-Packard | 18 | IBM | 19 |
| Airbnb | 31 | Salesforce | 18 | Hewlett-Packard | 18 |
| SAP | 31 | Social Finance | 18 | Paypal | 18 |
| General Electric Company | 26 | Lawrence Livermore National Laboratory | 17 | Microsoft Corporation | 17 |
| Microsoft Corporation | 26 | Slac National Accelerator Laboratory | 17 | Visa | 17 |

| | | | | | |
|---|---|---|---|---|---|
| Twitter | 26 | Square Incorporated | 16 | Wework | 16 |
| Visa | 26 | Harnham | 15 | Nvidia Corporation | 15 |
| Deloitte | 25 | Nvidia Corporation | 15 | Stanford University | 13 |

*Source: Burning Glass*

## Educational Supply

There are six community colleges in the Bay Region issuing 62 awards on average annually (last 3 years) on TOP 0708.00 - Computer Infrastructure and Support. Gavilan College is the only college in the Silicon Valley Sub-Region issuing an award on this TOP code, issuing one award on average annually (last 3 years). It is important to note that TOP 0708.00 - Computer Infrastructure and Support, is a program of study that would be preparing students for not only Data Science Occupations, but a cluster of other occupations more traditionally aligned with Computer Infrastructure and Support.

**Table 7. Awards on TOP 0708.00 - Computer Infrastructure and Support in the Bay Region**

| College | Sub-Region | Headcount | Associates | Certificates | Total |
|---|---|---|---|---|---|
| **Cabrillo** | Santa Cruz - Monterey | 335 | | | |
| **Contra Costa** | East Bay | | | 1 | 1 |
| **De Anza** | Silicon Valley | 312 | | | |
| **Diablo Valley** | East Bay | 125 | | | |
| **Gavilan** | Silicon Valley | 95 | 1 | | 1 |
| **Las Positas** | East Bay | 184 | | | |
| **Los Medanos** | East Bay | | 4 | 4 | 8 |
| **Mission** | Silicon Valley | 43 | | | |
| **Ohlone** | East Bay | 64 | | 1 | 1 |
| **San Francisco** | Mid-Peninsula | 345 | 39 | 9 | 48 |
| **San Mateo** | Mid-Peninsula | | 1 | 2 | 3 |
| **Santa Rosa** | North Bay | 205 | | | |
| **Total Bay Region** | | **1,708** | **45** | **17** | **62** |
| **Total Silicon Valley Sub-Region** | | **450** | **1** | **0** | **1** |

*Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

## Gap Analysis

Based on all available data, it is difficult to determine if there is an unmet need for Data Science workers that community college students in the Bay region are qualified for, since this is an emerging occupation and field. A traditional supply vs. demand "gap analysis" is difficult to perform. The demand is not completely clear (as is outlined in the Introduction section above) and the supply data from the TOP code selected by Foothill College – TOP 0708.00 - Computer Infrastructure and Support, is a program of study that would be preparing students for not only Data Science Occupations, but a cluster of other occupations more traditionally aligned with Computer Infrastructure and Support. So it is impossible to determine what portion of the supply/students from this TOP code would be seeking employment as a Computer and Information Research Scientist.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0708.00 - Computer Infrastructure and Support**

| 2015-16 | Bay (All CTE Programs) | Foothill College (All CTE Programs) | State (0708.00) | Bay (0708.00) | Silicon Valley (0708.00) | Foothill College (0708.00) |
|---|---|---|---|---|---|---|
| % Employed Four Quarters After Exit | 74% | 77% | 66% | 72% | 76% | n/a |

| | | | | | | |
|---|---|---|---|---|---|---|
| Median Quarterly Earnings Two Quarters After Exit | $23,396 | $55,862 | $38,862 | $47,642 | $53,243 | n/a |
| Median % Change in Earnings | 46% | 82% | 47% | 47% | 73% | n/a |
| % of Students Earning a Living Wage | 63% | 76% | 62% | 68% | 76% | n/a |

*Source: Launchboard Pipeline (version available on 2/12/19)*

## Skills, Certifications and Education

**Table 9. Top Skills for Data Science Occupations in Bay Region (Feb 2018 - Jan 2018)**

| Skill | Postings | Skill | Postings | Skill | Postings |
|---|---|---|---|---|---|
| Data Science | 5,504 | C++ | 992 | Software Engineering | 554 |
| Python | 4,784 | Scala | 946 | MapReduce | 513 |
| Machine Learning | 4,254 | TensorFlow | 936 | Product Development | 499 |
| SQL | 2,969 | Physics | 896 | Pandas | 473 |
| Apache Hadoop | 1,894 | Predictive Models | 882 | Cluster Analysis | 468 |
| Java | 1,769 | Economics | 782 | Computer Vision | 465 |
| Big Data | 1,567 | Tableau | 777 | Regression Algorithms | 452 |
| Data Analysis | 1,407 | Statistics | 747 | Scikit-learn | 448 |
| Experiments | 1,361 | SAS | 736 | Big Data Analytics | 441 |
| Deep Learning | 1,202 | Statistical Analysis | 735 | NoSQL | 436 |
| Data Mining | 1,183 | MATLAB | 682 | PIG | 408 |
| R | 1,179 | Data Visualization | 632 | Predictive Analytics | 406 |
| Artificial Intelligence | 1,056 | Software Development | 612 | Linux | 391 |
| Apache Hive | 1,039 | Clustering | 608 | Classification Algorithms | 385 |
| Natural Language Processing | 1,029 | Neural Networks | 603 | Distributed Computing | 385 |

*Source: Burning Glass*

**Table 10. Certifications for Data Science Occupations in the Bay Region (Feb 2018 - Jan 2018)**

Note: 98% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

| Certification | Postings | Certification | Postings |
|---|---|---|---|
| Project Management Certification | 17 | CompTIA Server+ | 2 |
| Project Management Professional (PMP) | 12 | Driver's License | 2 |
| American Board for Engineering and Technology (ABET) Accredited | 11 | IT Infrastructure Library (ITIL) | 2 |
| Security Clearance | 11 | Investment Advisor | 2 |
| Certified Scrum Trainer (CST) | 7 | Six Sigma Certification | 2 |
| Certified Novell Administrator | 6 | Six Sigma DFSS-Green Belt | 2 |
| Certified Scrum Professional (CSP) | 6 | Advanced Engineering Certificate | 1 |
| Certified Professional in Healthcare Quality | 5 | Certified Business Analysis Professional | 1 |
| Capability Model Maturity Integration (CMMI) Certification | 4 | Certified Information Systems Security Professional (CISSP) | 1 |
| Certified Scrum Developer (CSD) | 4 | Certified ScrumMaster (CSM) | 1 |
| Clinical Laboratory Scientist (CIS) | 3 | Certified Teacher | 1 |
| Financial Accounting Standards Board | 3 | Citrix Certified Advanced Administrator | 1 |
| Six Sigma Green Belt Certification | 3 | Fellow of the Casualty Actuarial Society | 1 |

*Source: Burning Glass*

**Table 11. Education Requirements for Data Science Occupations in Bay Region**

Note: 75% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

| Education (minimum advertised) | Latest 12 Mos. Postings |
|---|---|
| High school or vocational training | 0 (0%) |
| Associate Degree | 0 (0%) |
| Bachelor's Degree or Higher | 5,036 (100%) |

*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:

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

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

# FOOTHILL COLLEGE
## Stand-Alone Course Approval Request

If a Foothill credit course is **NOT** part of a State approved associate's degree, certificate of achievement or the Foothill College 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 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.

Stand Alone Course Approval Requests should be completed and forwarded to your Division Curriculum Committee to begin the approval process.

**Course #:** ESLL 201A

**Course Title:** Composition & Reading Instructional Support for English Language Learners

**Credit Status:**

X Credit course
____ Noncredit course

**Catalog Description**:

Designed to assist second language learners in developing the reading and writing skills and strategies required for success in ENGL 1A. Reinforcement of reading skills and strategies as they pertain to comprehension of content and critical analysis of rhetorical elements. Development of critical thinking skills and strategies related to the process of expository and argumentative writing. Application of essay revision and editing skills to include appropriate content, coherence, sentence efficiency and variety, and grammatical accuracy.

**Are you requesting Stand Alone approval for the course on a <u>temporary</u> or <u>permanent</u> basis?**

X The course will be **permanently** Stand Alone; there are no plans to add it to a State approved degree or certificate, nor to the Foothill GE pattern

____ The course will be Stand Alone **temporarily**, and it will be incorporated into a new degree or certificate that is not yet State approved. In this case, identify the degree/certificate to which the course will be added:

- 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?)

***NOTE:*** *If you have not submitted your program application to the State by the end of the current academic year, you must reapply for permanent Stand Alone approval.*

### 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 (select all that apply):

_____ Transfer
_____ Workforce/CTE
X_____ 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 attached to this form or provided in the box below.

| |
|---|
| This ESL version of the new co-requisite course to be offered with ENGL 1A is meant to address the needs of non-native English speaking students who, potentially against the advice of our AB 705-mandated guided self-placement mechanism, choose to place themselves directly into transfer-level English. Without this enhanced, ESL version of the co-requisite, we believe many of such students and their ENGL 1A teachers will face otherwise avoidable barriers to success. This corequisite model aligns with recommendations from the state Chancellor's Office, as well as the California Acceleration Project. |

**Criteria C. Curriculum Standards (please initial as appropriate)**

X_____ The outline of record for this course has been approved the Division Curriculum Committee and meets the requirements of Title 5

**Faculty Requestor:** David McCormick **Date:** 5/19/19

**Division Curriculum Representative:** Allison Herman **Date:** 5/24/19

**Date of Approval by Division Curriculum Committee:** 5/24/19

**College Curriculum Co-Chairperson:** _____ **Date:**

# Foothill College
# Submission Course Outlines

*For Faculty and Staff use only*

## Language Arts

**ESLL 201A COMPOSITION & READING INSTRUCTIONAL SUPPORT FOR ENGLISH LANGUAGE LEARNERS** **Winter 2020**

**2 hours lecture.** **2 Units**

**Total Contact Hours:** 24 ***(Total of All Lecture and Lab hours X 12)***

**Total Student Learning Hours:** 72 ***(Total of All Lecture, Lab hours and Out of Class X 12)***

**Lecture Hours:** 2 **Lab Hours:** **Weekly Out of Class Hours:** 4

**Note:** If Lab hours are specified, the ***item 10. Lab Content*** field must be completed.

**Repeatability -**

**Statement:** Not Repeatable.

**Status -**

**Course Status:** Active **Grading:** Letter Grade with P/NP option

**Degree Status:** Non-Applicable **Credit Status:** Credit

**Degree or Certificate Requirement:** Stand Alone Course

**GE Status:** Non-GE

**Articulation Office Information -**

**C.I.D. Notation:**

**Transferability:** **Validation:** 4/24/19

**Division Dean Information -**

**Seat Count:** 30 **Load Factor:** .044 **FOAP Code:** 114000123041493084

**Instruction Office Information -**

**FSA Code:**

**Distance Learning:** no

**Stand Alone Designation:** no

**Program Title:**

**Program TOPs Code:**

**Program Unique Code:**

**Content Review Date:**

**Former ID:**

**1. Description -**

Designed to assist second language learners in developing the reading and writing skills and strategies required for success in ENGL 1A. Reinforcement of reading skills and strategies as they pertain to comprehension of content and critical analysis of rhetorical elements. Development of critical thinking skills and strategies related to the process of

expository and argumentative writing. Application of essay revision and editing skills to include appropriate content, coherence, sentence efficiency and variety, and grammatical accuracy.

Corequisite: ENGL 1A.

**2. Course Objectives -**

The student will be able to:

A. Develop reading skills and strategies for comprehension and critical analysis.
B. Develop critical thinking skills and strategies related to the process of expository and argumentative writing.
C. Apply essay revision and editing skills.

**3. Special Facilities and/or Equipment -**

None.

**4. Course Content (Body of knowledge) -**

A. Develop and apply reading skills and strategies for comprehension and critical analysis.
    1. Identify essential elements:
        a. Thesis (major claim)
        b. Minor claims (topic sentences)
        c. Purpose: to inform, persuade, entertain, raise an issue or provoke thought
        d. Main ideas and sections as evidenced by topic signals or generalization of implied idea from detail (induction)
        e. Structure clues: topic sentences, coherence devices, signals that suggest organizational patterns
        f. Types of support: personal experience, statistics, anecdotes, etc.
    2. Infer elements of the text, such as audience, purpose, and bias
        a. Formatting, visual, and word clues
        b. Audience
        c. Informational, expository, and persuasive purposes
        d. Bias (e.g., exclusion of information, loaded language)
        e. Fact vs. opinion
        f. Message, if not directly stated
    3. Develop and apply various reading strategies
        a. Schema building
            1. Activation of prior knowledge
            2. Acquisition of culture-specific background and/or historical knowledge
        b. Previewing
        c. Distinguishing main ideas from supporting detail, i.e., distinguishing general from specific
        d. Annotating and note-taking
        e. Elaborative interrogation/self-questioning
        f. Outlining
        g. Paraphrasing and summary writing to check comprehension
    4. Critically evaluate text
        a. Author's credibility
        b. Author's underlying assumptions about the audience
        c. Evidence (appropriateness, effectiveness, relevance)
        d. Completeness of arguments
        e. Logic of arguments/claims
        f. Types of opinion (personal, considered, expert)
        g. Implications/consequences of ideas
B. Develop critical thinking strategies and production skills related to the process of expository and argumentative writing.
    1. Analysis of a prompt for essential requirements:
        a. Purpose, audience, appropriate content
    2. Brainstorming strategies:
        a. Free-writing, concept mapping, listing, etc.
    3. Evaluating the focus of a thesis statement:
        a. Narrow vs. specific
        b. Arguable
        c. Open vs. closed
    4. Determining the appropriateness of topic sentences:
        a. Less specific than the thesis statement
        b. Directly support the controlling idea of the thesis statement
    5. Outlining to establish a hierarchy of ideas
    6. Applying knowledge of English rhetorical elements
        a. Organizational patterns

b. Placement of support
c. Quotation use (for support, counter-argument/rebuttal, introducing an idea, etc.)
d. Task-specific types of introductions and conclusions
e. Appropriate vocabulary and tone

7. Identifying and incorporating task- and audience-appropriate evidence
   a. Determining evidence based on the topic and purpose
   b. Determining the needs of the audience
   c. Evaluating the depth and extent of evidence

C. Apply essay revision and editing skills.

1. Revision of essay content through:
   a. Self-assessment of the student's own product through application of instructional content
   b. Placing oneself in the position of the reader rather than writer
   c. Comprehending, evaluating, and incorporating feedback from classmates and the instructor
2. Apply editing skills to achieve:
   a. Coherence:
      1. Repetition of old information followed by new
      2. Transitional material: words, phrases, clauses
      3. Lexical coherence: repetition of terms or use of synonyms for topic continuity
      4. Terms that signal organizational patterns: chronology, compare/contrast, cause/effect, etc.
   b. Sentence efficiency:
      1. Combining sentences for fluency
      2. Reducing clauses to phrases to eliminate redundancy
      3. Eliminating verbosity
   c. Grammatical accuracy:
      1. Verb tense editing
      2. Complementation
      3. Clause formation (adjective, adverb, noun and related punctuation)
      4. Comma splices, run-on sentences, and fragments
      5. Word form

**5. Repeatability -** Moved to header area.

**6. Methods of Evaluation -**

A. In-class assignments
B. Tests and/or quizzes
C. Midterm and final self-assessment

**7. Representative Text(s) -**

This course should primarily focus on texts assigned in the ENGL 1A corequisite course.

Behrens and Rosen. Writing and Reading Across the Curriculum. New York: Longman, 2015.
Graff and Berkenstein. They Say/I Say: The Moves that Matter in Academic Writing with Readings. New York: Norton, 2017.

**8. Disciplines -**

English as a Second Language (ESL)

**9. Method of Instruction -**

Lecture and small-group or whole-class discussions on the processes and products of reading and writing.

**10. Lab Content -**

Not applicable.

**11. Honors Description -** No longer used. Integrated into main description section.

**12. Examples of Required Reading and Writing and Outside of Class Assignments -**

A. Reading of books and/or articles on the process and purpose of reading and writing in an academic setting
B. Reading and evaluation of student's own work and that of peers
C. Written reflections and self-evaluations

**13. Need/Justification -**

In compliance with legislation AB 705, this course provides students, who might otherwise be placed in pre-transfer-level ESL courses, additional support and guided instruction to meet the ENGL 1A learning objectives. These students will practice fundamental critical reading strategies and composition techniques to reinforce the objectives of ENGL 1A. This corequisite model aligns with recommendations from the state Chancellor's Office, as well as the California Acceleration Project, and is supported by data showing that transfer-level basic skills corequisites improve student throughput data to an average of 80%, which is significantly higher than our current pre-transfer basic skills series and higher than transfer-level success rates for this student population without the corequisite.

**FOOTHILL COLLEGE**
**Credit Program Narrative**
**Certificate of Achievement in Digital Marketing**

## Item 1. Program Goals and Objectives

The Certificate of Achievement in Digital Marketing Certificate will offer practical training in the latest marketing concepts and techniques used by businesses and organizations to obtain new customers, generate customer loyalty and drive profit. Small businesses and large companies alike are in dire need of employees who understand how to use digital marketing tools – social media advertising, search engine optimization and data analytics. This program will position individuals to benefit from the projected 10-percent growth in marketing and advertising positions that involve using these tools and strategies.

Program Learning Outcomes:

- Upon completion of the program, the student will have acquired the necessary basic skills to build effective online marketing strategy.
- Upon completion of the program, the student will be able to demonstrate appropriate critical thinking, problem-solving skills and communication skills to enhance online marketing efforts of an organization.

## Item 2. Catalog Description

Created in collaboration with Facebook Inc., the Certificate of Achievement in Digital Marketing is designed for people who are seeking to learn the latest marketing tools to promote a business or an organization online. The program provides 25 units of online instruction and hands-on practice in creating marketing content, understanding basic elements of building a website, employing search engine optimization, developing online ad campaigns and analyzing key performance metrics.

## Item 3. Program Requirements

| Requirements | Course # | Name | Units | Sequence |
|---|---|---|---|---|
| Core Courses (25 units) | BUSI 59 | Principles of Marketing | 4 | Year 1, Fall |
| | BUSI 57 | Principles of Advertising | 4 | Year 1, Winter |
| | BUSI 59A | Web Marketing | 5 | Year 1, Spring |
| | BUSI 59C | Marketing Content Strategy & Branding | 4 | Year 2, Fall |
| | BUSI 59D | Marketing Analytics & Performance Optimization | 4 | Year 2, Winter |
| | BUSI 59E | Email Marketing | 4 | Year 2, Spring |

**TOTAL UNITS: 25 units**

**Proposed Sequence:**
Year 1, Fall = 4 units
Year 1, Winter = 4 units
Year 1, Spring = 5 units

Year 2, Fall = 4 units
Year 2, Winter = 4 units
Year 2, Spring = 4 units
**TOTAL UNITS: 25 units**

**Item 4. Master Planning**

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. There is currently a high demand for qualified individuals who understand digital marketing tools and can utilize them to benefit an organization. This innovative program will allow students to achieve their goals whether it is to promote their business, advance in place of employment or transfer credit to a four-year college. The Certificate of Achievement in Digital Marketing is also a pivotal step for students who are retraining, returning to workplace and/or updating marketing skills.

**Item 5. Enrollment and Completer Projections**

On average 160 students have taken BUSI 59, Principles of Marketing, online and face-to-face, annually in the last three years (2015-2018). While BUSI 57 and BUSI 59A have not been regularly offered, we see a steady demand for these classes as well, especially when offered online. Due to strong demand for skills developed within the Certificate of Achievement in Digital Marketing and due to the highly visible partnership with Facebook, we believe that enrollment will grow in all three courses. We also believe that the compact nature of the certificate will attract individuals who are seeking to employ the newly acquired skills in their current jobs.

Because at least 100% of the courses can be taught completely online, it is expected that nation-wide participation over the next five years will significantly increase the number of students who complete this certificate.

| | | Year 1 (2017-18) | | Year 2 (2018-19) | |
|---|---|---|---|---|---|
| **Course #** | **Course Title** | **Annual Sections** | **Annual Enrollment** | **Annual Sections** | **Annual Enrollment** |
| BUSI 59 | Principles of Marketing | 4 | 172 | 4 | 156 |
| BUSI 57 | Principles of Advertising | 1 | 19 | 1 | 42 |
| BUSI 59A | Web Marketing | 3 | 97 | 1 | 46 |
| BUSI 59C | Marketing Content Strategy & Branding | N/A | N/A | N/A | N/A |
| BUSI 59D | Marketing Analytics & Performance Optimization | N/A | N/A | N/A | N/A |
| BUSI 59E | Email Marketing | N/A | N/A | N/A | N/A |

**Item 6. Place of Program in Curriculum**

Foothill College currently offers three of the courses necessary to complete the Certificate of Achievement in Digital Marketing (BUSI 57, 59 & 59A). Three new courses (BUSI 59C, 59D & 59E) have been proposed and developed in partnership with Facebook. We anticipate that the

new courses will be approved by the state in early 2020, allowing students to complete the updated program in the academic year 2020-2021.

**Item 7. Similar Programs at Other Colleges in Service Area**

The closest comparable program in California is offered by UC Irvine. The UCI program consists of a combination of 12 core units and four electives broken into 2-unit courses, offered as both face-to-face and online, duration is 3-12 months, average cost $4,760. According to UCI Division of Continuous Education information page, USI certificate offers the following benefits:

- Build effective online marketing strategies for customer acquisition, conversion and retention.
- Integrate key analytics and consumer browsing behavior into your online marketing efforts.
- Drive more traffic to your website using search engine marketing (SEM) techniques, including search engine optimization (SEO), to enhance both organic and paid search tactics and maximize promotional dollars.
- Track and measure online marketing campaigns using website analytical services n Apply social media, mobile and emerging technologies to promotions

Foothill's collaboration with Facebook sets our Certificate of Achievement in Digital Marketing apart from UCI. A big part of our certificate is the practical application. We will utilize access and ad credit provided by Facebook to offer our students projects where they can practice promoting a business or an event using Facebook tools and platform.

Canada College is working on developing a similar certificate. No comparable certificate is offered by a community college in California at this time.

U.S. Bureau of Labor Statistics

# Advertising, Promotions, and Marketing Managers

## Summary

Advertising, promotions, and marketing managers inspect layouts, which are sketches or plans for an advertisement.

| Quick Facts: Advertising, Promotions, and Marketing Managers | |
|---|---|
| **2018 Median Pay** | $132,620 per year<br>$63.76 per hour |
| **Typical Entry-Level Education** | Bachelor's degree |
| **Work Experience in a Related Occupation** | See How to Become One |
| **On-the-job Training** | None |
| **Number of Jobs, 2016** | 249,600 |
| **Job Outlook, 2016-26** | 10% (Faster than average) |
| **Employment Change, 2016-26** | 23,800 |

### What Advertising, Promotions, and Marketing Managers Do

Advertising, promotions, and marketing managers plan programs to generate interest in products or services. They work with art directors, sales agents, and financial staff members.

### Work Environment

Many of these workers are employed in advertising agencies or in corporate or regional managing offices.

### How to Become an Advertising, Promotions, or Marketing Manager

A bachelor's degree is required for most advertising, promotions, and marketing management positions. These managers typically have work experience in advertising, marketing, promotions, or sales.

### Pay

The median annual wage for advertising and promotions managers was $117,130 in May 2018.

The median annual wage for marketing managers was $134,290 in May 2018.

### Job Outlook

Overall employment of advertising, promotions, and marketing managers is projected to grow 10 percent from 2016 to 2026, faster than the average for all occupations. Advertising, promotions, and marketing campaigns will continue to be essential for organizations as they seek to maintain and expand their share of the market.

### State & Area Data

Explore resources for employment and wages by state and area for advertising, promotions, and marketing managers.

### Similar Occupations

Compare the job duties, education, job growth, and pay of advertising, promotions, and marketing managers with similar occupations.

### More Information, Including Links to O*NET

Learn more about advertising, promotions, and marketing managers by visiting additional resources, including O*NET, a source on key characteristics of workers and occupations.

## What Advertising, Promotions, and Marketing Managers Do

Advertising managers can be found in advertising agencies that put together advertising campaigns for clients, in media firms that sell advertising space or time, and in companies that advertise heavily.

Advertising, promotions, and marketing managers plan programs to generate interest in products or services. They work with art directors, advertising sales agents, and financial staff members.

## Duties

Advertising, promotions, and marketing managers typically do the following:

- Work with department heads or staff to discuss topics such as budgets and contracts, marketing plans, and the selection of advertising media
- Plan promotional campaigns such as contests, coupons, or giveaways
- Plan advertising campaigns, including which media to advertise in, such as radio, television, print, online media, and billboards
- Negotiate advertising contracts
- Evaluate the look and feel of websites used in campaigns or layouts, which are sketches or plans for an advertisement
- Initiate market research studies and analyze their findings to understand customer and market opportunities for businesses
- Develop pricing strategies for products or services marketed to the target customers
- Meet with clients to provide marketing or related advice
- Direct the hiring of advertising, promotions, and marketing staff and oversee their daily activities

***Advertising managers*** create interest among potential buyers of a product or service. They do this for a department, for an entire organization, or on a project basis (referred to as an account). Advertising managers work in advertising agencies that put together advertising campaigns for clients, in media firms that sell advertising space or time, and in organizations that advertise heavily.

Advertising managers work with sales staff and others to generate ideas for an advertising campaign. They oversee the staff that develops the advertising. They work with the finance department to prepare a budget and cost estimates for the campaign.

Often, advertising managers serve as liaisons between the client and the advertising or promotion agency that develops and places the ads. In larger organizations with extensive advertising departments, different advertising managers may oversee in-house accounts and creative and media services departments.

In addition, some advertising managers specialize in a particular field or type of advertising. For example, *media directors* determine the way in which an advertising campaign reaches customers. They can use any or all of various media, including radio, television, newspapers, magazines, the Internet, and outdoor signs.

Advertising managers known as *account executives* manage clients' accounts, but they are not responsible for developing or supervising the creation or presentation of advertising. That task becomes the work of the creative services department.

***Promotions managers*** direct programs that combine advertising with purchasing incentives to increase sales. Often, the programs use direct mail, inserts in newspapers, Internet advertisements, in-store displays, product endorsements, or special events to target customers. Purchasing incentives may include discounts, samples, gifts, rebates, coupons, sweepstakes, or contests.

***Marketing managers*** estimate the demand for products and services that an organization and its competitors offer. They identify potential markets for the organization's products.

Marketing managers also develop pricing strategies to help organizations maximize their profits and market share while ensuring that the organizations' customers are satisfied. They work with sales, public relations, and product development staff.

For example, a marketing manager may monitor trends that indicate the need for a new product or service. Then he or she may assist in the development of that product or service and to create a marketing plan for it.

## Work Environment

Advertising, promotions, and marketing managers may travel to meet with clients or representatives of communications media.

Advertising and promotions managers held about 31,300 jobs in 2016. The largest employers of advertising and promotions managers were as follows:

| | |
|---|---|
| Advertising, public relations, and related services | 34% |
| Information | 12 |
| Management of companies and enterprises | 7 |
| Wholesale trade | 6 |
| Self-employed workers | 5 |

Marketing managers held about 218,300 jobs in 2016. The largest employers of marketing managers were as follows:

| | |
|---|---|
| Professional, scientific, and technical services | 22% |
| Management of companies and enterprises | 16 |
| Manufacturing | 12 |
| Finance and insurance | 10 |
| Wholesale trade | 8 |

Because the work of advertising, promotions, and marketing managers directly affects a firm's revenue, people in these occupations typically work closely with top executives.

The jobs of advertising, promotions, and marketing managers can often be stressful, particularly near deadlines. Additionally, they may travel to meet with clients or media representatives.

### Work Schedules

Most advertising, promotions, and marketing managers work full time. Some advertising and promotions managers work more than 40 hours per week.

## How to Become an Advertising, Promotions, or Marketing Manager

These managers typically have previous work experience in advertising, marketing, promotions, or sales.

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## Education

A bachelor's degree is required for most advertising, promotions, and marketing management positions. For advertising management positions, some employers prefer a bachelor's degree in advertising or journalism. A relevant course of study might include classes in marketing, consumer behavior, market research, sales, communication methods and technology, visual arts, art history, and photography.

Most marketing managers need a bachelor's degree. Courses in business law, management, economics, finance, computer science, mathematics, and statistics are advantageous. For example, courses in computer science are helpful in developing an approach to maximize online traffic, by utilizing online search results, because maximizing such traffic is critical for the success of digital advertisements and promotions. In addition, completing an internship while in school can be useful.

## Work Experience in a Related Occupation

Advertising, promotions, and marketing managers typically have work experience in advertising, marketing, promotions, or sales. For example, many managers are former sales representatives; buyers or purchasing agents; or public relations specialists.

## Important Qualities

***Analytical skills.*** Advertising, promotions, and marketing managers must be able to analyze industry trends to determine the most promising strategies for their organization.

***Communication skills.*** Managers must be able to communicate effectively with a broad-based team made up of other managers or staff members during the advertising, promotions, and marketing process. They must also be able to communicate persuasively with the public.

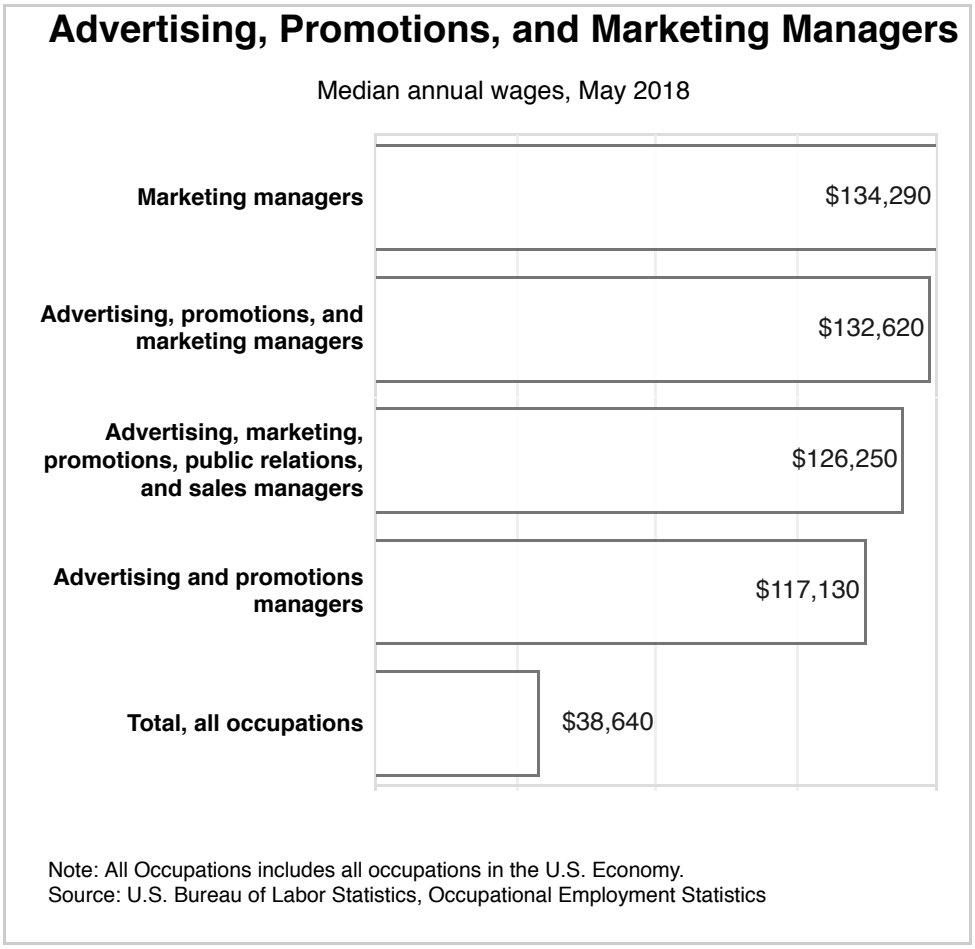
***Creativity.*** Advertising, promotions, and marketing managers must be able to generate new and imaginative ideas.

***Decisionmaking skills.*** Managers often must choose between competing advertising and marketing strategies put forward by staff.

***Interpersonal skills.*** Managers must deal with a range of people in different roles, both inside and outside the organization.

***Organizational skills.*** Advertising, promotions, and marketing managers must manage their time and budget efficiently while directing and motivating staff members.

## Pay




The median annual wage for advertising and promotions managers was $117,130 in May 2018. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than $57,150, and the highest 10 percent earned more than $208,000.

The median annual wage for marketing managers was $134,290 in May 2018. The lowest 10 percent earned less than $69,840, and the highest 10 percent earned more than $208,000.

In May 2018, the median annual wages for advertising and promotions managers in the top industries in which they worked were as follows:

| | |
|---|---|
| Advertising, public relations, and related services | $134,780 |
| Management of companies and enterprises | 113,210 |
| Information | 103,960 |
| Wholesale trade | 92,800 |

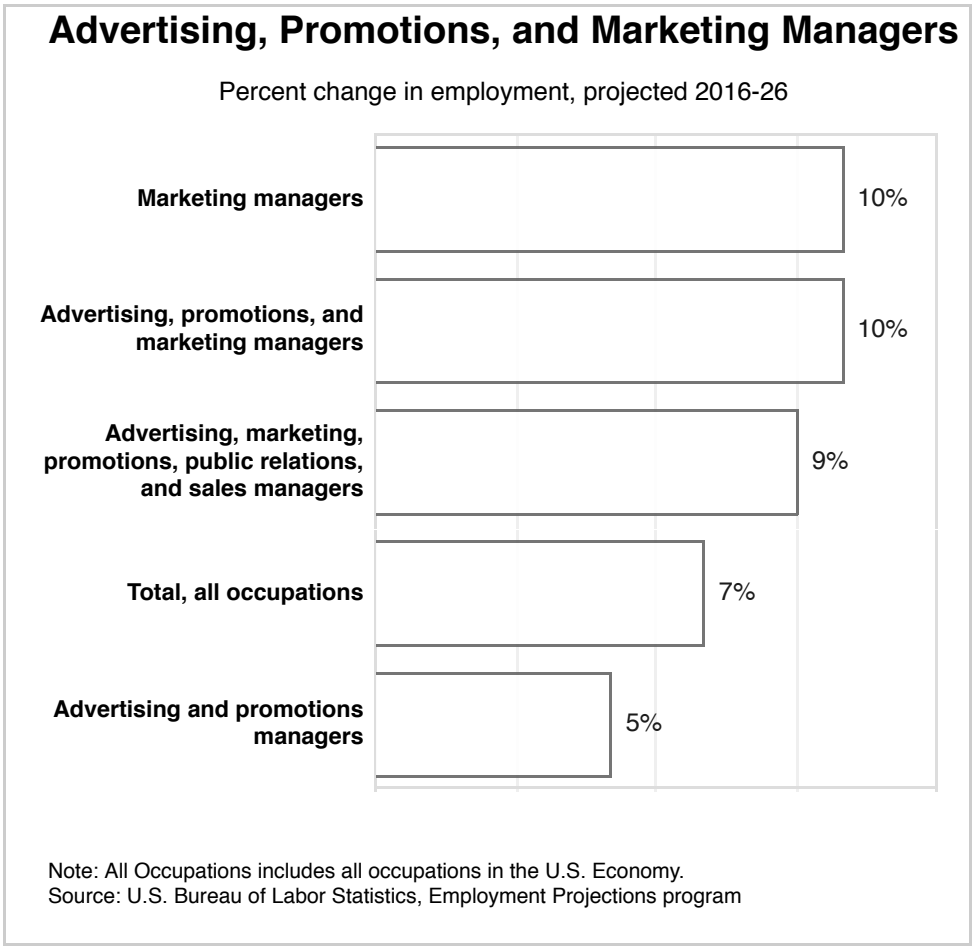
In May 2018, the median annual wages for marketing managers in the top industries in which they worked were as follows:

| | |
|---|---|
| Professional, scientific, and technical services | $143,100 |
| Management of companies and enterprises | 142,580 |

| | |
|---|---|
| Finance and insurance | 141,410 |
| Manufacturing | 137,610 |
| Wholesale trade | 126,000 |

Most advertising, promotions, and marketing managers work full time. Some advertising and promotions managers work more than 40 hours per week.

## Job Outlook




Overall employment of advertising, promotions, and marketing managers is projected to grow 10 percent from 2016 to 2026, faster than the average for all occupations. Employment growth will vary by occupation.

Advertising, promotional, and marketing campaigns are expected to continue to be essential as organizations seek to maintain and expand their market share. Advertising and promotions managers will be needed to plan, direct, and coordinate advertising and promotional campaigns, as well as to introduce new products into the marketplace.

However, the newspaper publishing industry, which employs many of these workers, is projected to decline over the next 10 years. The continued rise of electronic media will result in decreasing demand for print newspapers. Despite this decline, advertising and promotions managers are expected to see employment growth in other industries in which they will be needed to manage digital media campaigns that often target customers through the use of websites, social media, or live chats.

Through the Internet, advertising campaigns can reach a target audience across many platforms. This greater reach can increase the scale of the campaigns that advertising and promotions managers oversee. With better advertising management

software, advertising and promotions managers can control these campaigns more easily.

### Job Prospects

Advertising, promotions, and marketing manager positions are highly desirable and are often sought by other managers and experienced professionals. With Internet-based advertising becoming more important, advertising managers who can navigate the digital world should have the best prospects.

**Employment projections data for advertising, promotions, and marketing managers, 2016-26**

| Occupational Title | SOC Code | Employment, 2016 | Projected Employment, 2026 | Change, 2016-26 | | Employment by Industry |
|---|---|---|---|---|---|---|
| | | | | Percent | Numeric | |
| **Advertising, promotions, and marketing managers** | — | 249,600 | 273,400 | 10 | 23,800 | — |
| **Advertising and promotions managers** | 11-2011 | 31,300 | 33,000 | 5 | 1,700 | xlsx |
| **Marketing managers** | 11-2021 | 218,300 | 240,400 | 10 | 22,100 | xlsx |
| SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program | | | | | | |

## State & Area Data

### Occupational Employment Statistics (OES)

The Occupational Employment Statistics (OES) program produces employment and wage estimates annually for over 800 occupations. These estimates are available for the nation as a whole, for individual states, and for metropolitan and nonmetropolitan areas. The link(s) below go to OES data maps for employment and wages by state and area.

- Advertising and promotions managers
- Marketing managers

### Projections Central

Occupational employment projections are developed for all states by Labor Market Information (LMI) or individual state Employment Projections offices. All state projections data are available at www.projectionscentral.com . Information on this site allows projected employment growth for an occupation to be compared among states or to be compared within one state. In addition, states may produce projections for areas; there are links to each state's websites where these data may be retrieved.

### CareerOneStop

CareerOneStop includes hundreds of occupational profiles with data available by state and metro area. There are links in the left-hand side menu to compare occupational employment by state and occupational wages by local area or metro area. There is also a salary info tool to search for wages by zip code.

## Similar Occupations

This table shows a list of occupations with job duties that are similar to those of advertising, promotions, and marketing managers.

| | OCCUPATION | JOB DUTIES | ENTRY-LEVEL EDUCATION | 2018 MEDIAN PAY |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
|  | **Advertising Sales Agents** | Advertising sales agents sell advertising space to businesses and individuals. They contact potential clients, make sales presentations, and maintain client accounts. | High school diploma or equivalent | $51,740 |
|  | **Art Directors** | Art directors are responsible for the visual style and images in magazines, newspapers, product packaging, and movie and television productions. They create the overall design of a project and direct others who develop artwork and layouts. | Bachelor's degree | $92,780 |
|  | **Editors** | Editors plan, review, and revise content for publication. | Bachelor's degree | $59,480 |
|  | **Graphic Designers** | Graphic designers create visual concepts, using computer software or by hand, to communicate ideas that inspire, inform, and captivate consumers. They develop the overall layout and production design for applications such as advertisements, brochures, magazines, and reports. | Bachelor's degree | $50,370 |
|  | **Market Research Analysts** | Market research analysts study market conditions to examine potential sales of a product or service. They help companies understand what products people want, who will buy them, and at what price. | Bachelor's degree | $63,120 |
|  | **Sales Managers** | Sales managers direct organizations' sales teams. They set sales goals, analyze data, and develop training programs for organizations' sales representatives. | Bachelor's degree | $124,220 |
|  | **Financial Managers** | Financial managers are responsible for the financial health of an organization. They produce financial reports, direct investment activities, and develop strategies and plans for the long-term financial goals of their organization. | Bachelor's degree | $127,990 |

| | | | | |
|---|---|---|---|---|
|  | **Public Relations and Fundraising Managers** | Public relations managers plan and direct the creation of material that will maintain or enhance the public image of their employer or client. Fundraising managers coordinate campaigns that bring in donations for their organization. | Bachelor's degree | $114,800 |
|  | **Public Relations Specialists** | Public relations specialists create and maintain a favorable public image for the organization they represent. They craft media releases and develop social media programs to shape public perception of their organization and to increase awareness of its work and goals. | Bachelor's degree | $60,000 |

## Contacts for More Information

For more information about advertising managers, visit:

American Association of Advertising Agencies

### O*NET

Advertising and Promotions Managers

Green Marketers

Marketing Managers

**Suggested citation:**

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Advertising, Promotions, and Marketing Managers, on the Internet at https://www.bls.gov/ooh/management/advertising-promotions-and-marketing-managers.htm (visited *June 17, 2019*).

**Last Modified Date:** Tuesday, June 11, 2019

U.S. Bureau of Labor Statistics | Office of Occupational Statistics and Employment Projections, PSB Suite 2135, 2 Massachusetts Avenue, NE Washington, DC 20212-0001

www.bls.gov/ooh | Telephone: 1-202-691-5700 | Contact OOH

**FOOTHILL COLLEGE**
**Credit Program Narrative**
**Certificate of Achievement in Digital Marketing**

**Additional Information Required for State Submission:**

**TOP Code:** 0509.70 - E-Commerce (business emphasis)

**Annual Completers:** 40

**Net Annual Labor Demand:** 249,600

**Faculty Workload:** .6 annual load or 60% of one FTEF.

**New Faculty Positions:** None, our existing full-time and adjunct faculty will teach the courses.

**New Equipment:** $0

**New/Remodeled Facilities:** $0

**Library Acquisitions:** $0

**Gainful Employment:** Yes

**Program Review Date:** December 2021

**Distance Education:** 50-99%

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

# FOOTHILL COLLEGE
# Temporary Program Creation Process
# Feedback Form for New Programs

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

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

**Faculty Author(s):** Natasha Mancuso
**Division:** BSS

**Program Title:** Digital Marketing Certificate of Achievement
**Program Units:** 25

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

**Type of Award:**
_____ Non-transcriptable credit certificate
__X__ Certificate of Achievement
_____ Noncredit certificate
_____ AA/AS Degree (local)
_____ AA-T/AS-T Degree (ADT)

| **EQUITY & EDUCATION**<br>https://foothill.edu/gov/equity-and-education/ |
|---|
| **Date of meeting:** Narrative was submitted to E&E on October 1st. No response was received as of October 17th, 2019.<br><br>*The E&E committee is charged with taking on issues from an equity perspective. Within this framework, what feedback do you have?*<br>**Comments:** |

| **REVENUE & RESOURCES**<br>https://foothill.edu/gov/revenue-and-resources/ |
|---|
| **Date of meeting:** October 11th, 2019<br><br>*The R&R committee is charged with taking on issues from a budget perspective. Within this framework, what feedback do you have?*<br>**Comments:**<br>Per Pauline Brown, "The Council approved of the DM Certificate and had no further questions." |

| **ADVISORY COUNCIL**<br>https://foothill.edu/gov/council/ |
|---|
| **Date of meeting:** Submitted on October 1st, 2019. Per Isaac Escoto, AD did not have a scheduled meeting within 2 week timeframe.<br><br>*The Advisory Council is charged with taking on issues from a college-wide planning perspective. Within this framework, what feedback do you have?*<br>**Comments:** |

**Division Curriculum Committee Approval Date:** October 8th, 2019

**Division CC Representative:** Allison Meezan and Nick Tutle