**Peralta Community College District**

## Annual Program Update Template 2014-2015

## DISTRICT-WIDE DATA by Subject/Discipline Fall Semesters

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| Overview |
| BI Download: | 10/24/2014 | Dept. Chair: |  P. Thananjeyan  |
| Subject/Discipline: | CIS | Dean: |  Antonio Barreiro |
| Campus: |  Berkeley City College |
| Mission Statement | The mission of the program is to educate students so that they can compete and perform successfully in today’s ever-changing global business environment. Students in this program will acquire the computer application, programming, and technical knowledge and skills needed for initial employment, skill upgrades, career advancement, and career changes as well as the undergraduate courses needed to move into four-year computer science or other related degree programs that have similar goals.The program fully supports the general institutional student learning outcomes of Ethics and Personal Responsibility, Information Competency, Communication, Critical Thinking, Computational Skills, Global Awareness and Valuing Diversity, Self-awareness and Interpersonal Skills.  |

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| II. Enrollment |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Census Enrollment F11 | 273 | 372 | 630 | 340 | 1615 |
| Census Enrollment F12 | 319 | 347 | 613 | 241 | 1520 |
| Census Enrollment F13 | 367 | 420 | 578 | 239 | 1604 |
| Sections F11 | 7 | 10 | 16 | 8 | 41 |
| Sections F12 | 9 | 11 | 16 | 7 | 43 |
| Sections F13 | 12 | 12 | 17 | 8 | 49 |
| Total FTES F11 | 45.71 | 52.67 | 120.55 | 46.53 | 265.46 |
| Total FTES F12 | 56.92 | 47.76 | 119.83 | 32.22 | 256.73 |
| Total FTES F13 | 61.02 | 60.49 | 101.69 | 39.20 | 262.4 |
| Total FTEF F11 | 2.32 | 2.53 | 5.35 | 1.88 | 12.08 |
| Total FTEF F12 | 2.77 | 2.53 | 5.53 | 1.79 | 12.62 |
| Total FTEF F13 | 3.61 | 2.83 | 4.96 | 2.42 | 13.82 |
| FTES/FTEF F11 | 19.70 | 20.79 | 22.52 | 24.69 | 87.7 |
| FTES/FTEF F12 | 20.52 | 18.85 | 21.68 | 17.98 | 79.03 |
| FTES/FTEF F13 | 16.92 | 21.40 | 20.50 | 16.23 | 75.05 |

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| III. Student Success |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Total Graded F11 | 253 | 352 | 592 | 316 | 1513 |
| Total Graded F12 | 305 | 330 | 587 | 232 | 1454 |
| Total Graded F13 | 357 | 414 | 583 | 250 | 1604 |
| Success F11 | 135 | 168 | 353 | 100 | 756 |
| Success F12 | 181 | 168 | 397 | 127 | 873 |
| Success F13 | 212 | 162 | 336 | 119 | 829 |
| % Success F11 | 0.53 | 0.48 | 0.60 | 0.32 | 0.5 |
| % Success F12 | 0.59 | 0.51 | 0.68 | 0.55 | 0.6 |
| % Success F13 | 0.59 | 0.39 | 0.58 | 0.48 | 0.52 |
| Withdraw F11 | 64 | 116 | 132 | 145 | 457 |
| Withdraw F12 | 52 | 95 | 75 | 84 | 306 |
| Withdraw F13 | 75 | 147 | 121 | 92 | 435 |
| % Withdraw F11 | 0.25 | 0.33 | 0.22 | 0.46 | 0.3 |
| % Withdraw F12 | 0.17 | 0.29 | 0.68 | 0.36 | 0.21 |
| % Withdraw F13 | 0.21 | 0.36 | 0.21 | 0.37 | 0.27 |

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| IV. Faculty  |  |  |  |  |  |
|  | Alameda | Berkeley | Laney | Merritt | District |
| Contract FTEF F11 | 1.79 | 1.55 | 2.00 | 1.28 | 6.62 |
| Contract FTEF F12 | 2.25 | 1.83 | 1.90 | 0.88 | 6.86 |
| Contract FTEF F13 | 2.23 | 1.53 | 1.90 | 0.88 | 6.54 |
| TEMP FTEF F11 | 0.00 | 0.13 | 3.06 | 0.09 | 3.28 |
| TEMP FTEF F12 | 0.00 | 0.49 | 3.17 | 0.91 | 4.57 |
| TEMP FTEF F13 | 1.01 | 0.79 | 2.60 | 1.53 | 5.93 |
| Extra Service FTEF F11 | 0.53 | 0.85 | 0.29 | 0.52 | 2.19 |
| Extra Service FTEF F12 | 0.53 | 0.21 | 0.46 | 0.00 | 1.2 |
| Extra Service FTEF F13 | 0.37 | 0.51 | 0.46 | 0.00 | 1.34 |
| Total FTEF F11 | 2.32 | 2.53 | 5.36 | 1.89 | 12.1 |
| Total FTEF F12 | 2.77 | 2.53 | 5.53 | 1.79 | 12.62 |
| Total FTEF F13 | 3.61 | 2.83 | 4.96 | 2.42 | 13.82 |
| % Contract/Total F11 | 0.77 | 0.61 | 0.37 | 0.68 | 0.5471 |
| % Contract/Total F12 | 0.81 | 0.72 | 0.34 | 0.49 | 0.5436 |
| % Contract/Total F13 | 0.62 | 0.54 | 0.38 | 0.37 | 0.4732 |

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| V. Qualitative Assessments  |
| **CTE and Vocational**: Community and labor market relevance. Present evidence of community need based on Advisory Committee input, industry need data, McIntyre Environmental Scan, McKinsey Economic Report, licensure and job placement rates, etc.  | Labor Market Data attached at end of document. Relevant sections highlighted.The McIntyre Environmental Scan and US Depeartment of Labor have identified CIS as a growth area.All the existing certificated and required courses in the CIS department were updated in Fall 2013. Faculty will met in Spring 2014 with the Advisory Committee to match program offerings to community needs. They will be submitted to the State in Fall 2014 - Spring 2015 for their approval. Advisory Committee meetings will be scheduled on a yearly basis. Despite the reduction in courses and lack of support, CIS appears to be one of the skills in highest demand in the Bay Area. As shown in the EDD labor market reports attached, all areas of computer programming and software engineering will continue to need workers.As we can see from this table that many related areas of software development show a significant growth in employment in the San Francisco, San Mateo, Alameda, and Santa Clara areas. In particular computer software engineering profession is projected to increase by 45% in Oakland-Fremont-Hayward Metropolitan Areas.It also fulfills the needs of students who need one or two classes to upgrade their skills or meet requirements in their current organizations. Unfortunately, students seeking immediate employment are not tracked due to limited department resources. Our transfer courses are well received by four-year universities in the vicinity. |
| Transfer and Basic Skills: Describe how your course offerings address transfer, basic skills, and program completion.  | Many of the CIS courses are transferable and the CIS curriculum meets the needs of students who are transferring to a four year school, as well as the needs of the students who are pursuing a terminal degree or certificate to join the work force or improve their positions in their current jobs. CIS 03 and CIS 36A need to be updated to meet the AS-T degree. Action Plan:Update courses and create AS-T degree in CS.  |

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| VI. Course SLOs and Assessment |
|  | Fall 2014 |
| Number of active courses in your discipline |  39  |
| Number with SLOs |  39 |
| % SLOs/Active Courses |  100 |
| Number of courses with SLOs that have been assessed |  8 |
| % Assessed/SLOs |  21% |
| Describe types of assessment methods you are usingMinute paper and course assessments.  |
| Describe results of your SLO assessment progressWill be discussed during Spring 2015 |
| Describe how assessment results and reflection on those results have led to improvements.Will be discussed during Spring 2015 |

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| VII. Program Learning Outcomes and Assessment |
|  | Fall 2014 |
| Number of degrees and certificates in your discipline |  11  |
| Number with Program Learning Outcomes |  11  |
| Number assessed |  None. All programs have been revised and been submitted to State for approval. |
| % Assessed |  N/A |
| Describe assessment methods you are using Please see below for details of all program clusters and assessment methods. |
| Describe results of assessment. Describe how assessment of program-level student learning outcomes led to certificate/degree program improvements.Please see below for details of program cluster and assessment methods. All programs have been revised and submitted to State for approval.  |

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| Program | Outcomes | Assessment Findings | Action Plan |
| **PROGRAM 1:** **Micro Computer Applications** | Understand the basic components of a computer, computer programming, and operating systems. (Communication, Computational skills, information, critical thinking)Learn to use online resources, and use technology for personal and office use (Information competency, interpersonal skills)Basics concepts of computer programming and operating systems (Information competency, computational skills)Effective use of office applications (Communication, critical thinking, computational skills, information competency) | PROGRAM HAS BEEN COMPLETELY UPDATED AND WILL BE SUBMITTED TO STATE FOR REVIEW AND APPROVALIndividual course assessment and program assessment have been updated and assessment plans will be developed in Fall 2014-Spring 2015. Assessment will be conducted in Fall 2014 after approval from State. | NA.All courses are assessed using homework, projects, and exams. |
| **PROGRAM 2:** **Computer****Programming/Web Programming** | Advanced Programming and Problem solving, create functional web pages using current technology such as Java, JavaScript, JSP, Servlets, HTML. And CSS. (Communication, Computational skills, information, critical thinking)Learn to use online resources, and use technology for personal and office use (Information competency, interpersonal skills) | PROGRAM HAS BEEN COMPLETELY UPDATED AND WILL BE SUBMITTED TO STATE FOR REVIEW AND APPROVAL.Individual course assessment and program assessment have been updated and assessment plans will be developed in Fall 2014 – Spring 2015.Assessment will be conducted in Fall 2014 after approval from State. | NAAll courses are assessed using homework, projects, and exams.Certificates have capstone project as a part of the requirement. |
| Program 3:Operating systems and desktop support | Advanced Windows operating systems concepts including installation, maintenance, and support for office environments. (Communication, Computational skills, information, critical thinking)Advanced support for Office applications.(Communication, critical thinking, computational skills, information competency) | PROGRAM HAS BEEN COMPLETELY UPDATED AND WILL BE SUBMITTED TO STATE FOR REVIEW AND APPROVALIndividual course assessment and program assessment have been updated and assessment plans will be developed in Fall 2014 – Spring 2015 Assessment will be conducted in Fall Spring 2015 after approval from State. | NAAll courses are assessed using homework, projects, and exams. |
| Any general education components: |  |  |  |
| Any basic skills components: |  |  |  |
| Describe assessment methods you are using:All courses are assessed using homework, projects, exams, and programming assignments as appropriate. Programming certificates also have capstone projects that are part of the requirements.The FTEF/FTES retention and success rates are listed in the data elements and are comparable to the rest of the college. It should be noted that many students have left the programs in the middle because the courses have not been offered in a timely manner. Or they take courses at other colleges, both within and outside the Peralta District. Student support services are critical to student success. As with other disciplines/programs in the college, primary needs include counselors, tutoring, and financial aid. With adequate funding and additional staffing, the accounting program could manage a successful accounting tutoring center that would further increase student success in that areaMany students have received employment offers based on the course work completed and have not finished their program. There have been requests from employers and job placements companies requesting students from our department. Unfortunately, students seeking immediate employment are not tracked due to limited departments resources |
| Describe how assessment of program-level student learning outcomes led to certificate/degree program improvements:CIS program has undergone a tremendous reduction in classes since early 2000. 10 years ago, the CIS department had three fulltime faculty and three lab classrooms. We currently have only two fulltime faculty and two labs; moreover, a significant part of lab facilities are being used by Multi-media, ART, English, and other departments. We were never able to offer a full schedule of classes because of budget cuts and cancellation of classes as a regular sequence of courses.Last year we updated all the CIS programs and created a series of stackable certificates that start from Certificate of Proficiency to AS degrees. All CIS courses have student learning outcomes. All programs have Program Learning Outcomes. None of the programs have been assessed as of now. These programs will be submitted to State in Fall 2014 - Spring 2015. Given the nature of the courses offered here and the student composition (in and out or a few classes and then transfer or get a job or take classes to fulfill job requirements), we would be wiser to plan the program assessment based on the individual course assessments, as opposed to a portfolio system.Given the budget cuts and the cancellation of classes, we have structured many of the courses offered by the department to parallel the professional certificate programs offered by the industry. This also facilitates quick employment for the students. For example, CIS 36A and CIS 36B cover the same materials that are needed for the Oracle Certified Java Programmer and Oracle Certified Java Developer. CIS 85 covers the same materials that are needed for the Oracle Certified Web Component Developer. CIS 81 and 82 covers part of the topics required for the Oracle Certified Enterprise Architect. The Office courses parallel the Microsoft MOS certificates and the Windows and operating systems classes parallel the Microsoft MTA certificates.Action Plans:* Submit program/certificate updates to State in Fall 2014 - Spring 2015.
* Create 2 or 3 year course sequence and increase budget for courses so that students can complete certificate programs in a timely manner.
* Create a weekend/Summer robotics program for high school students.
* Create and implement plan for assessing all courses every three years.
* Create a Games and Graphics Programming Certificate
* Create courses for programming on the Android platform
* Update CIS 3, CIS 20, CIS 27, CIS 36A and create an AS-T program
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| VIII. Strategic Planning Goals |
| Check all that apply.[x] Advance Student Access, Success & Equity[x] Engage our Communities & Partners[x] Build Programs of Distinction[x] Create a Culture of Innovation & Collaboration[x] Develop Resources to Advance & Sustain Mission | Describe how goal applies to your program.The program are aimed at teaching computing skills for entry level employment to advanced programming and computer support technicians.Most courses can be tranferred to UCs and CSUs and we are currently devoping an AST program in Computer Science.All programs support college and district missions and goals.        |

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| IX. College Strategic Plan Relevance |
| Check all that apply [x] New program under development[x] Program that is integral to your college’s overall strategy[x] Program that is essential for transfer[x] Program that serves a community niche[ ] Programs where student enrollment or success has been demonstrably affected by extraordinary external factors, such as barriers due to housing, employment, childcare etc.[ ] Other  |

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| X. Action Plan |
| Please describe your plan for responding to the above data (quantitative, qualitative, and data specifically from course and program learning outcomes assessment). Consider curriculum, pedagogy/instructional, scheduling, and marketing strategies. Also, please reference any cross district collaboration with the same discipline at other Peralta colleges. Include overall plans/goals and specific action steps.Please see below. |

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| Action Plan Item 1Hire Part-time and full-time faculty to teach CS courses. |
| Action Plan Item 2Update courses to comply with SB 1440 and create an AAT program |
| Action Plan Item 3Explore the possibility of creating an engineering transfer program, |
| Action Plan Item 4 Explore game programming certificate in collaboration with Multimedia Department |
| Action Plan Item 5Create an additional computer lab to offer more computer classes needed for the program. |
| Action Plan Item 6Develop and offer classes in robotics. Create partnership for STEM program with high schools. |
| Action Plan Item 7Maintain ongoing contact with the newly revitalized Business/CIS advisory board. |

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| XI. Needs |
| Please describe and prioritize any **faculty, classified, and student assistant** needs.Please see below.  |
| Please describe and prioritize any **equipment, material, and supply** needs.Please see below.  |
| Please describe and prioritize any **facilities** needs.  Please see below. |

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| Resource Needs: Please use the Excel template to estimate the cost of your needs, which will be used to support budget planning efforts. | Link to Action Plans (Refer to # of item in section VI) | Estimated Cost: Please use Excel template to estimate costs. |
| Please describe and prioritize any **faculty, classified, and student assistant** needs.* Need to increase FTEF to be able offer courses in a timely manner so that students can complete certificate programs in a timely manner. Need PT faculty who can teach CS courses.
* Need student assistants to support concurrent classes.
* Need student assistants for lab classes.
* Need tutors to help students outside of class.
* Need financial assistance/relief time to update courses outlines, certificate programs, develop online courses, etc described in action plan (see Section VI).
 | These are needed to support action plans in section VIII.Additional faculty and student support will be needed to expand the CS/CIS courses and program. CS Faculty will need release time to update courses, create additional programs and certificates, and create a working partnership with the high schools for a STEM program. | Fulltime Instructor (CS):$97,812Part-time Instructor (CS/CIS):$75,000Clerical Assistant/ Release time: $27,150 Instructional Assistants (2):$22,746Teacher Aide:$38,933 |
| Please describe and prioritize any **equipment, material, and supply** needs.* Monitors in lab 312 need to be upgraded to meet course needs. These should be updated to meet Windows 8 touch-screen requirements.
* Upgrade memory on all computers in room 312 and 323 to 16 GB.
* CIS faculty computers - Need Computers that can run both MAC OX and WINDOWS
* Printers in rooms 312, 323, and 556 must be updated. The lab printers are heavily used and have not been updated since they were first installed.
* The projectors in room 312 and 323 must be updated urgently.
 | These are needed to support action plans in section VI..All courses need upgraded labs to support course work. | Monitors (41):$20,000Computers (2):$5,360Printers (3);$10,000(Estimated)Projectors (2):$10,000(Estimated)Memory (86):10,000(Estimated) |
| Please describe and prioritize any **facilities** needs.* At least one additional multipurpose lab is needed to support the programs that were developed and updated last semester. The lab should be able support office applications, computer programming applications, operating systems, and network.
 | These are needed to support action plans in section X.. | Cost estimate not available. |

**Appendix I: BCC Institutional Learning Outcomes (ILOs)**

**Berkeley City College Institutional Learning Outcomes**

Berkeley City College’s Institutional Learning Outcomes, as described below, are the skills and knowledge that students are expected to attain as a result of completing an instructional program at BCC. Students completing an A.A. or A.S. at BCC will be able to demonstrate all of the BCC Institutional Learning Outcomes. All BCC courses and certificates are designed to teach some or all of the ILO’s. In addition, students achieve these ILO’s throughout their experiences at BCC, for example, with student services and student clubs.

Communication

Students show that they communicate well when they

* *Critically read, write, and communicate interpersonally, with audience awareness; and*
* *analyze communications for meaning, purpose, effectiveness, and logic.*

Critical Thinking

Students demonstrate critical thinking skills when they

* *identify problems or arguments and isolate facts related to arguments;*
* *use evidence and sound reasoning to justify well-informed positions; and*
* *generate multiple solutions to problems and predict consequences.*

Computational Skills (Quantitative Reasoning\*)

Students demonstrate computational skills when they

* *master computational concepts and apply them to concrete problems; and*
* *demonstrate algorithmic competence.*

Ethics and Personal Responsibility

Students show the ability to behave ethically and assume personal responsibility when they

* *analyze the consequences of their actions and the impact of these actions on society and the self; and*
* *demonstrate collaborative involvement in community interests.*

Global Awareness & Valuing Diversity (Intercultural Competency\*)

Students demonstrate global awareness and show that they value diversity when they

* *identify and explain diverse customs, beliefs, and lifestyles; and*
* *analyze how cultural, historical, and geographical issues shape perceptions.*

Information Competency

Students demonstrate information competency when they

* *find, evaluate, use, and communicate information in all its various formats;*
* *use library and online resources and research methodology effectively; and*
* *use technology effectively.*

Self-Awareness & Interpersonal Skills

Students demonstrate self-awareness and interpersonal skills when they

* *analyze their own actions and the perspectives of other persons; and*
* *work effectively with others in groups.*

\*Proposed changes as of November 2013**Appendix II: Goals**

**Berkeley City College - Institutional Goals 2014-2015**

**Goal 1**

Meet BCC resident student FTES target (3,939) and Achieve Total FTES of 4500 FTES by preserving and nourishing resources. PCCD Resident Student FTES Goal 19,355

**Goal 2**

Increase certificate/degree completion and transfers to 4-year colleges or universities by inspiring and supporting students and maintaining high-quality educational programs.

**Goal 3**

Improve career and college preparation progress and success rates (successfully transition students from basic skills to college-level, as well as CTE/career.)

**Goal 4**

Ensure BCC programs and services reach sustainable, continuous quality improvement level.

**Goal 5**

Collaborate to ensure Fiscal Stability.

**Peralta Community College District - Strategic Goals 2014-2015**

1. Advance Student Access, Equity, and Success
2. Engage and Leverage Partners
3. Build Programs of Distinction
4. Strengthen Accountability, Innovation and Collaboration
5. Develop and Manage Resources to Advance Our Mission

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| **BCC Goals** | **Alignment with PCCD Goals Below** |
| 1. Meet BCC resident FTES target (3,939) by preserving and nourishing resources
 | 1. Advance Student Access, Equity, and Success
2. Engage and Leverage Partners
3. Build Programs of Distinction
 |
| 1. Increase certificate/degree completion and transfers to 4-year colleges or universities by inspiring and supporting students
 | 1. Advance Student Access, Equity, and Success

C. Build Programs of Distinction |
| 1. Improve career and college preparation progress and success rate (successfully transition from basic skills to college-level, CTE to career)
 | 1. Engage and Leverage Partners
2. Build Programs of Distinction
3. Strengthen Accountability, Innovation and Collaboration
 |
| 1. Ensure BCC programs and services reach sustainable, continuous improvement level
 | 1. Strengthen Accountability, Innovation and Collaboration
2. Develop and Manage Resources to Advance Our Mission
 |
| 1. Collaborate to ensure Fiscal Stability
 | 1. Develop and Manage Resources to Advance Our Mission
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| **SOC Code** | **Occupational Title** | **Annual Average Employment** | **Employment****Change** | **2012 First Quarter****Wages [1]** |
| **2010** | **2 2020** | **Percent** | **Median Hourly** | **Median Annual** |
| 15-1132 | Software Developers, Applications | 7,180 | 9,560 | 33.1 | $49.15 | $102,242 |
| 17-2081 | Environmental Engineers | 640 | 830 | 29.7 | $49.20 | $102,341 |
| 47-2161 | Plasterers and Stucco Masons | 520 | 670 | 28.8 | $29.05 | $60,423 |
| 19-3051 | Urban and Regional Planners | 1,000 | 1,280 | 28.0 | $40.77 | $84,813 |
| 15-1133 | Software Developers, Systems Software | 3,940 | 5,040 | 27.9 | $52.03 | $108,211 |
| 19-4091 | Environmental Science and Protection Technicians, Including Health | 400 | 510 | 27.5 | $25.82 | $53,700 |
| 27-1026 | Merchandise Displayers and Window Trimmers | 1,300 | 1,650 | 26.9 | $12.79 | $26,604 |
| 11-9051 | Food Service Managers | 3,370 | 4,270 | 26.7 | $24.57 | $51,087 |
| 19-2041 | Environmental Scientists and Specialists, Including Health | 1,130 | 1,430 | 26.5 | $37.39 | $77,782 |
| 51-9081 | Dental Laboratory Technicians | 490 | 620 | 26.5 | $18.95 | $39,433 |
| 47-2211 | Sheet Metal Workers | 1,210 | 1,520 | 25.6 | $28.67 | $59,624 |
| 15-1131 | Computer Programmers | 3,710 | 4,660 | 25.6 | $43.65 | $90,801 |
| 47-2221 | Structural Iron and Steel Workers | 560 | 700 | 25.0 | $33.79 | $70,295 |
| 47-4041 | Hazardous Materials Removal Workers | 960 | 1,200 | 25.0 | $20.45 | $42,549 |
| 13-1111 | Management Analysts | 5,510 | 6,850 | 24.3 | $45.18 | $93,965 |
| 29-9011 | Occupational Health and Safety Specialists | 580 | 720 | 24.1 | $46.61 | $96,947 |
| 47-2152 | Plumbers, Pipefitters, and Steamfitters | 2,460 | 3,050 | 24.0 | $29.31 | $60,976 |
| 13-1161 | Market Research Analysts and Marketing Specialists | 4,280 | 5,300 | 23.8 | $38.35 | $79,777 |
| 47-2073 | Operating Engineers and Other Construction Equipment Operators | 2,290 | 2,830 | 23.6 | $34.60 | $71,977 |
| 47-1011 | First-Line Supervisors of Construction Trades and Extraction Workers | 3,810 | 4,690 | 23.1 | $39.88 | $82,945 |
| 47-2051 | Cement Masons and Concrete Finishers | 650 | 800 | 23.1 | $28.52 | $59,314 |
| 47-4011 | Construction and Building Inspectors | 910 | 1,120 | 23.1 | $36.99 | $76,933 |
| 17-3011 | Architectural and Civil Drafters | 1,090 | 1,340 | 22.9 | $30.22 | $62,853 |
| 35-2011 | Cooks, Fast Food | 5,080 | 6,240 | 22.8 | $9.10 | $18,934 |
| 51-3092 | Food Batchmakers | 570 | 700 | 22.8 | $13.58 | $28,255 |
| 53-3022 | Bus Drivers, School or Special Client | 1,230 | 1,510 | 22.8 | $15.28 | $31,800 |
| 35-3031 | Waiters and Waitresses | 13,010 | 15,960 | 22.7 | $9.03 | $18,786 |
| 35-2014 | Cooks, Restaurant | 6,300 | 7,720 | 22.5 | $12.16 | $25,286 |
| 35-9031 | Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop | 2,530 | 3,100 | 22.5 | $9.09 | $18,916 |
| 27-3042 | Technical Writers | 400 | 490 | 22.5 | $39.91 | $83,020 |
| 35-9021 | Dishwashers | 4,890 | 5,990 | 22.5 | $9.29 | $19,315 |
| 47-2111 | Electricians | 3,260 | 3,990 | 22.4 | $36.59 | $76,112 |
| 35-3011 | Bartenders | 2,680 | 3,280 | 22.4 | $10.05 | $20,922 |
| 35-9011 | Dining Room and Cafeteria Attendants and Bartender Helpers | 3,180 | 3,890 | 22.3 | $9.00 | $18,735 |
| 43-4081 | Hotel, Motel, and Resort Desk Clerks | 1,080 | 1,320 | 22.2 | $11.08 | $23,053 |
| 13-2053 | Insurance Underwriters | 500 | 610 | 22.0 | $35.63 | $74,105 |
| 47-2081 | Drywall and Ceiling Tile Installers | 1,730 | 2,110 | 22.0 | $30.84 | $64,151 |
| 51-2023 | Electromechanical Equipment Assemblers | 410 | 500 | 22.0 | $17.14 | $35,652 |

**Fastest growing Jobs in Oakland – Fremont – Hayward Metropolitan Areas**

**Source: EDD (2012)**

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| **SOC Code** | **Occupational Title** | **Annual Average Employment****Employment****Change** | **2012 First Quarter****Wages [1]** |
| **2010** | **2020** | **Percent** | **Median Hourly** | **Median Annual** |
| 35-3021 | Combined Food Preparation and Serving Workers, Including Fast Food | 16,740 | 20,410 | 21.9 | $9.39 | $19,535 |
| 41-3021 | Insurance Sales Agents | 1,800 | 2,190 | 21.7 | $34.77 | $72,314 |
| 11-3021 | Computer and Information Systems Managers | 2,960 | 3,600 | 21.6 | $66.70 | $138,739 |
| 51-3021 | Butchers and Meat Cutters | 1,250 | 1,520 | 21.6 | $18.04 | $37,531 |
| 35-2015 | Cooks, Short Order | 1,900 | 2,310 | 21.6 | $11.52 | $23,971 |
| 29-1131 | Veterinarians | 510 | 620 | 21.6 | $51.96 | $108,067 |
| 49-3093 | Tire Repairers and Changers | 560 | 680 | 21.4 | $14.79 | $30,773 |
| 35-1012 | First-Line Supervisors of Food Preparation and Serving Workers | 5,280 | 6,400 | 21.2 | $13.89 | $28,900 |
| 53-7081 | Refuse and Recyclable Material Collectors | 900 | 1,090 | 21.1 | $26.72 | $55,580 |
| 35-1011 | Chefs and Head Cooks | 570 | 690 | 21.1 | $22.72 | $47,255 |
| 53-7064 | Packers and Packagers, Hand | 4,710 | 5,700 | 21.0 | $10.41 | $21,651 |
| 15-1121 | Computer Systems Analysts | 5,720 | 6,920 | 21.0 | $45.43 | $94,495 |

Occupational employment projections include self-employed, unpaid family workers, private household workers, farm, and nonfarm employment. N/A - Information is not available.

Occupations with employment below 400 in 2010 are excluded. Excludes "All Other" categories.

Data sources: U.S. Bureau of Labor Statistics' Current Employment Statistics and Quarterly Census of Employment and Wages industry employment, and Occupational Employment Statistics data.

The use of occupational employment projections as a time series is not encouraged due to changes in the occupational, industrial, and geographical classification systems; changes in the way data are collected; and changes in the OES survey reference period.

\* Most occupations are published according to the 2010 Standard Occupational Classification (SOC) system. Occupations denoted with an asterisk may have the same title as a 2010 SOC code, but not the same content; these occupations are assigned a temporary code for OES data collection.

[1] Median hourly and annual wages are the estimated 50th percentile of the distribution of wages; 50 percent of workers in an occupation earn wages below, and 50 percent earn wages above the median wage. The wages are from 2012 first quarter and do not include self-employed or unpaid family workers.

[2] The Bureau of Labor Statistics develops and assigns education and training categories to each occupation. For more information on these categories, please see <http://www.bls.gov/emp/ep_education_training_system.htm>

|  |
| --- |
| **On-the-Job Training** |
| I/R | Internship/Residency |
| APP | Apprenticeship |
| LT OJT | Long-term on-the-job training |
| MT OJT | Moderate-term on-the-job training |
| ST OJT | Short-term on-the-job training |
| None | None |  |  |

|  |
| --- |
| **Work Experience in a Related Occupation** |
| >5 years | More than 5 years experience in a related occupation or field is common. |
|  |
| 1-5 years | Between 1 and 5 years experience in a related occupation or field is common. |
|  |
| <1 year | Less than 1 year experience in a related occupation or field is common. |
|  |
| None | No work experience is typically required. |
|  |

|  |
| --- |
| **Entry Level Education** |
| 1- Doctoral or professional degree |
| 2- Master's degree |
| 3- Bachelor's degree |
| 4- Associate's degree |
| 5- Postsecondary non-degree award |
| 6- Some college, no degree |
| 7- High school diploma or equivalent |
| 8- Less than high school |

|  |  |  |  |
| --- | --- | --- | --- |
|   | **2010-2020 Industry Employment Projections** |   | Employment Development Department |
|   | **Oakland-Fremont-Hayward Metropolitan Division** |  | Labor Market Information Division |
|   | **(Alameda and Contra Costa Counties)** |   | August 27, 2012 |
| **NAICS Code** | **Industry Title** | **Annual Average Employment** | **Employment Change** |
| **2010** | **2020** | **Numerical**  | **Percent** |
|  | **Total Employment** | **1,047,600** | **1,206,200** | **158,600** | **15.1** |
|  |  |  |  |  |  |
|  |  **Self Employment (A)** | **78,600** | **85,100** | **6,500** | **8.3** |
|  |  |  |  |  |  |
|  |  **Unpaid Family Workers (B)** | **700** | **700** | **0** | **0.0** |
|  |  |  |  |  |  |
|  |  **Private Household Workers (C)** | **18,600** |  **21,000**  | **2,400** | **12.9** |
|   |   |   |   |   |   |
|  |  **Total Farm** | **1,400** | **1,600** | **200** | **14.3** |
|  |  |  |  |  |  |
|  |  **Total Nonfarm** | **948,300** | **1,097,800** | **149,500** | **15.8** |
|  |  |  |  |  |  |
| **1133,21** |  **Mining and Logging** | **1,200** | **1,300** | **100** | **8.3** |
|  |  |  |  |  |  |
| **23** |  **Construction** | **47,400** | **61,100** | **13,700** | **28.9** |
| 236 |  Construction of Buildings | 11,400 | 14,900 | 3,500 | 30.7 |
| 2361 |  Residential Building Construction | 7,100 | 9,400 | 2,300 | 32.4 |
| 237 |  Heavy and Civil Engineering Construction | 5,900 | 7,700 | 1,800 | 30.5 |
| 238 |  Specialty Trade Contractors | 30,200 | 38,500 | 8,300 | 27.5 |
| 2381 |  Foundation, Structure, and Building Exterior Contractors | 6,400 | 7,900 | 1,500 | 23.4 |
| 2382 |  Building Equipment Contractors | 12,500 | 16,000 | 3,500 | 28.0 |
|   |   |   |   |   |   |
| **31-33** |  **Manufacturing** | **79,700** | **83,400** | **3,700** | **4.6** |
|  |  **Durable Goods Manufacturing (321,327,331-339)** | **47,700** | **53,100** | **5,400** | **11.3** |
| 334 |  Computer and Electronic Product Manufacturing | 17,800 | 20,000 | 2,200 | 12.4 |
| 336 |  Transportation Equipment Manufacturing | 3,300 | 2,400 | -900 | -27.3 |
|   |   |   |   |   |   |
|  |  **Nondurable Goods Manufacturing (311-316,322-326)** | **32,000** | **30,300** | **-1,700** | **-5.3** |
| 324 |  Petroleum and Coal Products Manufacturing | 7,800 | 7,000 | -800 | -10.3 |
| 325 |  Chemical Manufacturing | 5,800 | 5,100 | -700 | -12.1 |
|   |   |   |   |   |   |
| **22,42-49** |  **Trade, Transportation, and Utilities**  | **173,600** | **198,900** | **25,300** | **14.6** |
| **42** |  **Wholesale Trade** | **41,800** | **45,300** | **3,500** | **8.4** |
| 423 |  Merchant Wholesalers, Durable Goods | 20,400 | 19,300 | -1,100 | -5.4 |
| 424 |  Merchant Wholesalers, Nondurable Goods | 16,600 | 20,100 | 3,500 | 21.1 |
|   |   |   |   |   |   |
| **44-45** |  **Retail Trade** | **100,300** | **116,900** | **16,600** | **16.6** |
| 441 |  Motor Vehicle and Parts Dealers | 10,000 | 12,500 | 2,500 | 25.0 |
| 445 |  Food and Beverage Stores | 22,900 | 27,300 | 4,400 | 19.2 |
| 446 |  Health and Personal Care Stores | 6,900 | 7,800 | 900 | 13.0 |
| 448 |  Clothing and Clothing Accessories Stores | 8,400 | 10,700 | 2,300 | 27.4 |
| 451 |  Sporting Goods, Hobby, Book, and Music Stores | 5,100 | 4,400 | -700 | -13.7 |
| 452 |  General Merchandise Stores | 19,400 | 23,500 | 4,100 | 21.1 |
|  |  |  |  |  |  |
| **22,48-49** |  **Transportation, Warehousing, and Utilities**  | **31,500** | **36,700** | **5,200** | **16.5** |
| **48-49** |  **Transportation and Warehousing** | **27,800** | **32,700** | **4,900** | **17.6** |
| 484 |  Truck Transportation | 6,000 | 7,300 | 1,300 | 21.7 |
| 492 |  Couriers and Messengers | 6,300 | 7,000 | 700 | 11.1 |
| 493 |  Warehousing and Storage | 3,900 | 4,400 | 500 | 12.8 |
|   |   |   |   |   |   |
| **51** |  **Information** | **23,600** | **24,300** | **700** | **3.0** |
| 511 |  Publishing Industries (except Internet) | 5,300 | 5,600 | 300 | 5.7 |
| 517 |  Telecommunications | 10,100 | 9,000 | -1,100 | -10.9 |
|   |   |   |   |   |   |
| **52-53** |  **Financial Activities** | **48,200** | **56,300** | **8,100** | **16.8** |
| **52** |  **Finance and Insurance** | **33,000** | **39,700** | **6,700** | **20.3** |
| 522 |  Credit Intermediation and Related Activities | 17,500 | 21,200 | 3,700 | 21.1 |
| 524 |  Insurance Carriers and Related Activities | 11,300 | 13,700 | 2,400 | 21.2 |
|   |   |   |   |   |   |
| **53** |  **Real Estate and Rental and Leasing** | **15,200** | **16,600** | **1,400** | **9.2** |
| 531 |  Real Estate | 10,900 | 12,300 | 1,400 | 12.8 |
|   |   |   |   |   |   |
| **54-56** |  **Professional and Business Services** | **152,100** | **192,000** | **39,900** | **26.2** |
| **54** |  **Professional, Scientific, and Technical Services** | **80,100** | **105,600** | **25,500** | **31.8** |
| 5413 |  Architectural, Engineering, and Related Services | 14,800 | 18,100 | 3,300 | 22.3 |
| 5415 |  Computer Systems Design and Related Services | 18,700 | 27,200 | 8,500 | 45.5 |
|   |   |   |   |   |   |
| **55** |  **Management of Companies and Enterprises** | **25,000** | **28,200** | **3,200** | **12.8** |
|   |   |   |   |   |   |
| **56** | **Administrative and Support and Waste Management and Remediation Services** | **47,000** | **58,200** | **11,200** | **23.8** |
| 561 |  Administrative and Support Services | 42,100 | 52,200 | 10,100 | 24.0 |
| 5613 |  Employment Services | 15,100 | 20,400 | 5,300 | 35.1 |
| 5616 |  Investigation and Security Services | 7,700 | 9,200 | 1,500 | 19.5 |
| 5617 |  Services to Buildings and Dwellings | 11,300 | 13,500 | 2,200 | 19.5 |
|   |   |   |   |   |   |
| **61-62** |  **Educational Services, Health Care and Social Assistance** | **136,400** | **159,000** | **22,600** | **16.6** |
| **61** |  **Educational Services (Private)** | **20,200** | **25,800** | **5,600** | **27.7** |
|   |   |   |   |   |   |
| **62** |  **Health Care and Social Assistance** | **116,200** | **133,200** | **17,000** | **14.6** |
| 621 |  Ambulatory Health Care Services | 52,200 | 58,800 | 6,600 | 12.6 |
| 622 |  Hospitals (Private) | 27,400 | 30,900 | 3,500 | 12.8 |
| 623 |  Nursing and Residential Care Facilities | 19,400 | 22,600 | 3,200 | 16.5 |
| 624 |  Social Assistance | 17,300 | 20,900 | 3,600 | 20.8 |
|   |   |   |   |   |   |
| **71-72** |  **Leisure and Hospitality** | **85,800** | **104,400** | **18,600** | **21.7** |
| **71** |  **Arts, Entertainment, and Recreation** | **14,500** | **16,900** | **2,400** | **16.6** |
|  |  |  |  |  |  |
| **72** |  **Accommodation and Food Services** | **71,300** | **87,500** | **16,200** | **22.7** |
| 721 |  Accommodation | 6,600 | 8,100 | 1,500 | 22.7 |
| 722 |  Food Services and Drinking Places | 64,700 | 79,400 | 14,700 | 22.7 |
|   |   |   |   |   |   |
| **81** |  **Other Services (excludes 814-Private Household Workers)** | **35,000** | **38,900** | **3,900** | **11.1** |
| 811 |  Repair and Maintenance | 10,300 | 10,900 | 600 | 5.8 |
| 812 |  Personal and Laundry Services | 8,900 | 10,400 | 1,500 | 16.9 |
|   |   |   |   |   |   |
|  |  **Government** | **165,300** | **178,200** | **12,900** | **7.8** |
|  |  **Federal Government (D)** | **15,700** | **13,800** | **-1,900** | **-12.1** |
|  |  |  |  |  |  |
|  |  **State and Local Government** | **149,600** | **164,400** | **14,800** | **9.9** |
|  |  **State Government** | **38,100** | **41,000** | **2,900** | **7.6** |
|   |  State Government Education | 25,500 | 28,700 | 3,200 | 12.5 |
|   |  Other State Government | 12,600 | 12,300 | -300 | -2.4 |
|   |   |   |   |   |   |
|  |  **Local Government** | **111,500** | **123,400** | **11,900** | **10.7** |
|   |  Local Government Education | 54,900 | 61,400 | 6,500 | 11.8 |
|   |  Other Local Government | 56,600 | 62,000 | 5,400 | 9.5 |
|  |  |  |  |  |  |
|  |  |
|  | Data sources: U.S. Bureau of Labor Statistics' Current Employment Statistics (CES) March 2011 benchmark and Quarterly Census of Employment and Wages (QCEW) industry employment. |
|  | Industry detail may not add up to totals due to independent rounding. |
|  |  |
| (A) | Self-Employed persons work for profit or fees in their own business, profession, trade, or farm. Only the unincorporated self-employed are included in this category. The estimated and projected employment numbers include all workers who are primarily self-employed and wage and salary workers who hold a secondary job as a self-employed worker.  |
| (B) | Unpaid family workers are those persons who work without pay for 15 or more hours per week on a farm or in a business operated by a member of the household to whom they are related by birth or marriage. |
| (C) | Private Household Workers are employed as domestic workers whose primary activities are to maintain the household. Industry employment is based on QCEW. |
| (D) | Temporary U.S. Census workers are included in the base and projected year employment numbers. |