** Project Management Practitioner Occupations**

**Labor Market Information Report**

**De Anza College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

May 2019

# Recommendation

Based on all available data, there appears to be a significant undersupply of Project Management Practitioner workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County.) There is a projected annual gap of about 6,504 students in the Bay region and 1,926 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0506.00 - Business Management 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 De Anza College and in the region.

# Introduction

This report profiles Project Management Practitioner Occupations in the 12 county Bay region and in the Silicon Valley sub-region for the review of an existing program at De Anza College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Information Technology Project Managers (15-1199.09), therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates demand for Information Technology Project Managers. Similarly, labor market information (LMI) is not available at the eight-digit SOC Code level for Wind Energy Project Managers (11-9199.10), therefore, the data shown in Tables 1 and 2 is for Managers, All Other (at the six digit SOC level) and likely overstates demand for Wind Energy Project Managers. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for both Information Technology Project Managers (15-1199.09) and Wind Energy Project Managers (11-9199.10).

|  |
| --- |
| * **Computer Occupations, All Other (SOC 15-1199):** All computer occupationsnot 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% |
|  |
| * **Managers, All Other (SOC** **11-9199):** All managers not listed separately. |
| Entry-Level Educational Requirement: Bachelor's *degree* |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 26*%* |
|  |
| * **Construction Managers (SOC 11-9021)**: Plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems. Participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation. Includes managers in specialized construction fields, such as carpentry or plumbing. |
| Entry-Level Educational Requirement: Bachelor's *degree* |
| Training Requirement: Moderate-term *on-the-job training* |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 32*%* |
|  |
| * **Architectural and Engineering Managers (**SOC 11-9041): Plan, direct, or coordinate activities in such fields as architecture and engineering or research and development in these fields. Excludes “Natural Sciences Managers" (11-9121). |
| Entry-Level Educational Requirement: Bachelor's *degree* |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 11*%* |

# Occupational Demand

**Table 1. Employment Outlook for Project Management Practitioner 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 |
| Managers, All Other | 32,371 | 34,763 | 2,392 | 7% | 13,950 | 2,790 | $15.92 | $40.69 |
| Construction Managers | 12,935 | 13,936 | 1,001 | 8% | 5,631 | 1,126 | $14.74 | $46.04 |
| Architectural and Engineering Managers | 11,847 | 12,448 | 602 | 5% | 4,750 | 950 | $49.71 | $80.33 |
| **Total** | **76,883** | **83,120** | **6,237** | **8%** | **33,432** | **6,686** | **$23.77** | **$50.94** |

*Source: EMSI 2019.2*

**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 Project Management Practitioner 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 | 7,209 | 7,990 | 781 | 11% | 3,348 | 694 | $26.64 | $58.87 |
| Managers, All Other | 7,140 | 7,620 | 481 | 7% | 3,104 | 628 | $16.22 | $46.13 |
| Construction Managers | 3,042 | 3,234 | 192 | 6% | 1,277 | 259 | $15.25 | $55.85 |
| Architectural and Engineering Managers | 5,692 | 5,693 | 1 | 0% | 2,011 | 392 | $54.41 | $83.98 |
| **TOTAL** | **23,083** | **24,537** | **1,454** | **6%** | **9,740** | **1,972** | **$28.76** | **$60.72** |

*Source: EMSI 2019.2*

**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 (May 2018 - April 2019)**

| Occupation | Bay Region | Silicon Valley |
| --- | --- | --- |
| Information Technology Project Managers | 15,474 | 6,241 |
| Architectural and Engineering Managers | 9,791 | 3,742 |
| Construction Managers | 7,525 | 2,258 |
| Biofuels/Biodiesel Technology and Product Development Managers | 7 | 3 |
| Wind Energy Project Managers | 3 | 1 |
| **Total** | **32,800** | **12,245** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Project Management Practitioner Occupations for latest 12 months (May 2018 - April 2019) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Engineering Manager | 4,873 | Senior Project Manager | 309 |
| Construction Manager | 2,625 | Chief Engineer | 276 |
| Director of Engineering | 1,500 | Information Technology Program Manager | 253 |
| Project Manager | 1,414 | Vice President, Engineering | 241 |
| Technical Project Manager | 1,108 | Software Manager | 194 |
| Information Technology Project Manager | 1,050 | Assistant Manager | 191 |
| Information Technology Manager | 884 | Project Engineer | 190 |
| Superintendent | 556 | Release Manager | 180 |
| Scrum Master | 507 | Technical Manager | 177 |
| Construction Superintendent | 453 | Software Development Manager | 156 |
| Engineering Project Manager | 434 | Architectural Project Manager | 143 |
| Technical Lead | 413 | Director of Construction | 140 |
| Technology Manager | 402 | Technical Consultant | 135 |
| Infrastructure Project Manager | 312 | Agile Coach | 115 |

**Table 4b. Top Job Titles for Project Management Practitioner Occupations for latest 12 months (May 2018 - April 2019) Silicon Valley Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Silicon Valley | Common Title | Silicon Valley |
| Engineering Manager | 1,864 | Technology Manager | 129 |
| Construction Manager | 777 | Information Technology Program Manager | 118 |
| Project Manager | 524 | Senior Project Manager | 101 |
| Director of Engineering | 483 | Software Engineering Manager | 88 |
| Technical Project Manager | 445 | Technical Consultant | 82 |
| Information Technology Project Manager | 370 | Software Development Manager | 81 |
| Engineering Project Manager | 318 | Chief Engineer | 81 |
| Information Technology Manager | 274 | Assistant Manager | 68 |
| Technical Lead | 196 | Technical Manager | 65 |
| Scrum Master | 176 | Technical Leader | 64 |
| Infrastructure Project Manager | 164 | Vice President, Engineering | 61 |
| Construction Superintendent | 158 | Release Manager | 61 |
| Superintendent | 157 | Project Manager, Scrum | 60 |
| Software Manager | 133 | Content Contractor | 52 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Project Management Practitioner Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2018) | Jobs in Industry (2022) | % Change (2018-22) | % in Industry (2018) |
| Custom Computer Programming Services (541511) | 5,601 | 6,212 | 10.9% | 7.1% |
| Computer Systems Design Services (541512) | 3,197 | 3,477 | 8.8% | 4.1% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 3,011 | 2,967 | (1.5%) | 3.8% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 2,843 | 3,013 | 6.0% | 3.6% |
| Residential Remodelers (236118) | 2,836 | 3,135 | 10.5% | 3.6% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 2,715 | 3,499 | 28.9% | 3.5% |
| Engineering Services (541330) | 2,510 | 2,714 | 8.1% | 3.2% |
| Commercial and Institutional Building Construction (236220) | 2,391 | 2,720 | 13.8% | 3.1% |
| Local Government, Excluding Education and Hospitals (903999) | 2,257 | 2,354 | 4.3% | 2.9% |
| Software Publishers (511210) | 1,835 | 2,140 | 16.6% | 2.3% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 1,723 | 1,604 | (6.9%) | 2.2% |
| New Single-Family Housing Construction (except For-Sale Builders) (236115) | 1,553 | 1,522 | (2.0%) | 2.0% |
| Electronic Computer Manufacturing (334111) | 1,391 | 1,456 | 4.7% | 1.8% |
| Electrical Contractors and Other Wiring Installation Contractors (238210) | 1,193 | 1,288 | 8.0% | 1.5% |
| Data Processing, Hosting, and Related Services (518210) | 1,184 | 1,495 | 26.3% | 1.5% |
| Administrative Management and General Management Consulting Services (541611) | 1,158 | 1,348 | 16.4% | 1.5% |
| Semiconductor and Related Device Manufacturing (334413) | 1,139 | 1,058 | (7.1%) | 1.5% |
| All Other Specialty Trade Contractors (238990) | 1,108 | 1,148 | 3.6% | 1.4% |
| Plumbing, Heating, and Air-Conditioning Contractors (238220) | 1,075 | 1,154 | 7.3% | 1.4% |
| Research and Development in Biotechnology (except Nanobiotechnology) (541714) | 1,045 | 1,391 | 33.1% | 1.3% |
| Other Computer Related Services (541519) | 848 | 976 | 15.1% | 1.1% |
| Painting and Wall Covering Contractors (238320) | 774 | 773 | (0.1%) | 1.0% |

*Source: EMSI 2019.2*

**Table 6. Top Employers Posting Project Management Practitioner Occupations in Bay Region and Silicon Valley Sub-Region (May 2018 - April 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
| Apple Inc. | 709 | Twitter | 85 | Apple Inc. | 692 |
| Google Inc. | 369 | Salesforce | 85 | Google Inc. | 340 |
| Cisco Systems Incorporated | 349 | Adobe Systems | 80 | Cisco Systems Incorporated | 293 |
| Facebook | 305 | SAP | 73 | Wipro | 115 |
| Uber | 168 | Workday, Inc | 72 | cbre | 102 |
| cbre | 162 | Microsoft Corporation | 70 | Infosys | 101 |
| Infosys | 162 | Vmware Incorporated | 66 | Cynet Systems Inc | 101 |
| Wipro | 159 | Paypal | 63 | Amazon | 70 |
| Accenture | 153 | Kaiser Permanente | 63 | IBM | 65 |
| Capital Markets Placement | 149 | Stanford University | 62 | Vmware Incorporated | 63 |
| Cynet Systems Inc | 146 | Jacobs Engineering Group Incorporated | 59 | Paypal | 57 |
| Amazon | 120 | Oracle | 58 | Stanford University | 55 |
| Jones Lang Lasalle Incorporated | 98 | Autodesk Incorporated | 58 | Adobe Systems | 55 |
| IBM | 89 | Charles Schwab | 56 | Applied Materials | 50 |
| Deloitte | 89 | Wework | 53 | Intel Corporation | 43 |
| The Turner Corporation | 88 | Splunk | 53 | Western Digital | 42 |
| Walmart / Sam's | 86 | Republic Bancorp | 53 | The Turner Corporation | 42 |

*Source: Burning Glass*

# Educational Supply

There are 12 community colleges in the Bay Region issuing 182 awards on average annually (last 3 years) on TOP 0506.00 - Business Management. There are three colleges in the Silicon Valley Sub-Region issuing 46 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0506.00 - Business Management in the Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Berkeley City College | East Bay | 26 |  |  |  |
| Cañada College | Mid Peninsula | 1,992 |  |  |  |
| Chabot College | East Bay | n/a |  | 8 | 8 |
| City College of San Francisco | Mid Peninsula | 171 |  |  |  |
| College of Marin | North Bay | n/a | 1 | 1 | 2 |
| College of San Mateo | Mid Peninsula | 157 | 5 | 10 | 15 |
| Contra Costa College | East Bay | 54 | 34 | 34 | 68 |
| De Anza College | Silicon Valley | 304 | 7 | 20 | 27 |
| Diablo Valley College | East Bay | 306 |  | 3 | 3 |
| Foothill College | Silicon Valley | 43 |  |  |  |
| Hartnell College | Santa Cruz - Monterey | 19 |  |  |  |
| Laney College | East Bay | 24 |  |  |  |
| Los Medanos College | East Bay | 174 |  |  |  |
| Merritt College | East Bay | 150 |  | 2 | 2 |
| Mission College | Silicon Valley | 31 |  |  |  |
| Monterey Peninsula College | Santa Cruz - Monterey | 306 |  |  |  |
| Napa Valley College | North Bay | 14 | 6 |  | 6 |
| San Jose City College | Silicon Valley | 38 | 4 | 5 | 9 |
| Santa Rosa Junior College | North Bay | 378 | 12 | 14 | 26 |
| Skyline College | Mid Peninsula | 130 |  |  |  |
| Solano College | North Bay | 255 | 4 | 2 | 6 |
| West Valley College | Silicon Valley | n/a | 4 | 6 | 10 |
| **Total Bay Region** | | **4,572** | **77** | **105** | **182** |
| **Total Silicon Valley Sub-Region** | | **416** | **15** | **31** | **46** |

# *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 the data included in this report, there is a large labor market gap in the Bay region with 6,686 annual openings for the Project Management Practitioner occupational cluster and 182 annual (3-year average) awards for an annual undersupply of 6,504 students. In the Silicon Valley Sub-Region, there is also a gap with 1,972 annual openings and 46 annual (3-year average) awards for an annual undersupply of 1,926 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0506.00 - Business Management**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | DeAnza College (All CTE Programs) | State (0506.00) | Bay (0506.00) | Silicon Valley (0506.00) | De Anza College (0506.00) |
| % Employed Four Quarters After Exit | 74% | 69% | 68% | 75% | 83% | 83% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $10,272 | $8,816 | $10,575 | $16,452 | $16,582 |
| Median % Change in Earnings | 46% | 55% | 40% | 41% | 38% | 38% |
| % of Students Earning a Living Wage | 63% | 60% | 61% | 68% | 87% | 91% |

*Source: Launchboard Pipeline (version available on 5/15/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Project Management Practitioner Occupations in Bay Region (May 2018 - April 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Project Management | 15,682 | Staff Management | 2,052 | Business Development | 1,448 |
| Budgeting | 8,880 | Atlassian JIRA | 2,023 | Agile Development | 1,364 |
| Scheduling | 7,627 | Quality Management | 1,978 | JavaScript | 1,282 |
| Software Development | 4,528 | Product Development | 1,958 | Software as a Service (SaaS) | 1,280 |
| Scrum | 4,018 | Python | 1,912 | DevOps | 1,280 |
| Engineering Management | 3,918 | SQL | 1,857 | Systems Development Life Cycle (SDLC) | 1,269 |
| Project Planning and Development Skills | 3,790 | Stakeholder Management | 1,783 | E-Commerce | 1,259 |
| Quality Assurance and Control | 3,533 | Change Management | 1,719 | SAP | 1,182 |
| Construction Management | 3,049 | Estimating | 1,692 | Conflict Management | 1,170 |
| Software Engineering | 2,712 | Procurement | 1,609 | Occupational Health and Safety | 1,148 |
| Microsoft Project | 2,676 | Program Management | 1,512 | Process Improvement | 1,055 |
| Customer Service | 2,518 | Oracle | 1,473 | Product Sales | 1,054 |
| Java | 2,468 | Business Process | 1,473 | Linux | 1,052 |
| Product Management | 2,266 | Cost Control | 1,466 | Information Technology Industry Knowledge | 1,052 |
| Scrum Master | 2,175 | Customer Contact | 1,463 | Cost Estimation | 1,044 |

*Source: Burning Glass*

**Table 10. Certifications for Project Management Practitioner Occupations in the Bay Region (May 2018 - April 2019)**

Note: 80% 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 | 2,977 | Certified Information Systems Security Professional (CISSP) | 154 |
| Project Management Professional (PMP) | 1,973 | PMI Agile Certified Practitioner (PMI-ACP) | 151 |
| Driver's License | 1,018 | Security Clearance | 118 |
| Certified ScrumMaster (CSM) | 981 | Certified Information Systems Auditor (CISA) | 115 |
| IT Infrastructure Library (ITIL) Certification | 506 | Contractors License | 106 |
| Licensed Professional Engineer | 225 | Six Sigma Certification | 89 |
| ITIL Certification | 215 | Cisco Certified Network Associate (CCNA) | 89 |
| Agile Certification | 208 | Certified Information Security Manager (CISM) | 82 |
| Certified Scrum Professional (CSP) | 189 | Program Management Professional (PgMP) | 76 |
| LEED AP | 182 | Cisco Certified Network Professional (CCNP) | 60 |
| Certified Construction Manager | 177 | Architecture License | 59 |
| Leadership In Energy And Environmental Design (LEED) Certified | 171 | Occupational Safety and Health Administration Certification | 56 |

*Source: Burning Glass*

**Table 11. Education Requirements for Project Management Practitioner Occupations in Bay Region**

Note: 44% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |  |
| --- | --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings | Percent 12 Mos. Postings |
| High school or vocational training | 862 | 5% |
| Associate Degree | 241 | 1% |
| Bachelor’s Degree or Higher | 16,399 | 94% |

*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/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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