

Occupational Profile: Computer Software Engineers, Applications

GENERAL OCCUPATION DESCRIPTION

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team.

Source: O*NET online. <http://online.onetcenter.org>

REQUIRED EDUCATION

As shown in the table to right, over 32% of interviewed employers reportedly require a two-year degree or the equivalent, with an additional 68% requiring a four-year college degree or more.

| Required Education | |
|---|--------|
| Percent of Employers Requiring HS Diploma or Less | 0% |
| Percent of Employers Requiring 2-Year Degree or Equiv | 32.32% |
| Percent of Employers Requiring BS Diploma or More | 67.68% |

Source: Bureau of Labor Statistics

WAGES

Computer Software Engineer, Applications is considered a high-wage occupation, with excellent possibility for wage advancement with experience. Employers in the State of Arizona generally pay less as compared with the overall United States.

| Location | Pay Period | 2005 | | | | |
|-----------------|------------|----------|----------|----------|----------|-----------|
| | | 10% | 25% | Median | 75% | 90% |
| United States | Hourly | \$22.77 | \$29.05 | \$37.06 | \$45.66 | \$55.84 |
| | Yearly | \$47,400 | \$60,400 | \$77,100 | \$95,000 | \$116,100 |
| Greater Phoenix | Hourly | \$20.93 | \$26.26 | \$32.18 | \$39.84 | \$48.15 |
| | Yearly | \$43,555 | \$54,647 | \$66,967 | \$82,907 | \$100,200 |
| Arizona | Hourly | \$20.55 | \$25.94 | \$33.59 | \$42.06 | \$51.43 |
| | Yearly | \$42,700 | \$54,000 | \$69,900 | \$87,500 | \$107,000 |

Source: Bureau of Labor Statistics

As shown in the table to right, a national comparison of wages for this occupation reveals Arizona ranks 23rd in terms of median wages.

| RANK | Location | Median Wage 2005 | |
|------|---------------|------------------|----------|
| | | Hourly | Annual |
| 1 | Massachusetts | \$41.99 | \$87,300 |
| 2 | California | \$41.95 | \$87,300 |
| 3 | New Jersey | \$40.12 | \$83,400 |
| 4 | Colorado | \$38.78 | \$80,700 |
| 5 | Washington | \$38.28 | \$79,600 |
| 23 | ARIZONA | \$33.59 | \$69,900 |

Source: Bureau of Labor Statistics

The table below provides a comparison of wages by sub-industry for the Greater Phoenix region (2005). As shown, the main employment sector, "Professional, Scientific, and Technical Services," pays slightly less than other main employment sectors.

| Wages by Industry: Greater Phoenix MSA (2005) | Rounded Employment | Mean Wage | 10th Percentile Wage | 25th Percentile Wage | Median Wage | 75th Percentile Wage | 90th Percentile Wage |
|---|--------------------|-----------|----------------------|----------------------|-------------|----------------------|----------------------|
| Professional, Scientific, and Technical Services | 2,270 | \$33.21 | \$22.44 | \$25.24 | \$30.78 | \$39.61 | \$48.66 |
| Computer and Electronic Product Manufacturing | 810 | \$36.90 | \$25.11 | \$30.27 | \$36.53 | \$43.05 | \$50.94 |
| Merchant Wholesalers, Durable Goods | 530 | \$36.78 | \$24.12 | \$29.72 | \$34.94 | \$44.64 | \$52.86 |
| Publishing Industries (except Internet) | 230 | \$27.47 | \$15.37 | \$18.27 | \$22.70 | \$38.09 | \$45.56 |
| Administrative and Support Services | 120 | \$41.86 | \$27.80 | \$33.00 | \$42.15 | \$51.87 | \$56.99 |
| Telecommunications | 110 | \$40.52 | \$24.52 | \$36.30 | \$41.54 | \$48.33 | \$54.49 |
| Insurance Carriers and Related Activities | 70 | \$31.74 | \$21.88 | \$25.66 | \$30.20 | \$35.60 | \$42.90 |
| Public Administration | 60 | \$34.74 | \$22.85 | \$28.76 | \$34.69 | \$41.32 | \$45.65 |
| Educational Services | 30 | \$29.95 | \$17.42 | \$23.47 | \$29.16 | \$34.27 | \$48.53 |
| Management of Companies and Enterprises | . | \$35.63 | \$29.10 | \$31.88 | \$36.24 | \$40.31 | \$42.75 |
| Securities, Commodity Contracts, and Other Financial Investments | . | \$34.56 | \$15.27 | \$24.84 | \$35.39 | \$42.50 | \$54.42 |
| Internet Service Providers, Web Search Portals, and Data Processing | . | \$30.63 | \$13.82 | \$23.52 | \$31.11 | \$38.98 | \$45.09 |
| Hospitals | . | \$29.82 | \$19.15 | \$21.79 | \$28.92 | \$36.56 | \$43.96 |
| Credit Intermediation and Related Activities | . | \$21.47 | \$14.16 | \$14.91 | \$16.16 | \$22.58 | \$41.32 |

EMPLOYMENT

As shown in the table below, this occupation has a projected 29% growth rate over 10 years (between 2003 and 2013) for the Greater Phoenix region. There are an average projected 158 job openings each year, comprised of 118 new jobs and 40 positions vacated by individuals leaving the field (due to retirement, death, career changes, or other reasons).

| | 10-YEAR CHANGE | | | AVERAGE ANNUAL | | |
|---|----------------|---------|----------------|----------------|--------|-------------|
| | Employment | | Percent Change | Job Openings | Growth | Separations |
| | 2004 | 2014 | | | | |
| United States | | | | | | |
| Computer software engineers, applications | 459,800 | 682,200 | 48% | 26,790 | n/a | n/a |
| Arizona | | | | | | |
| Computer software engineers, applications | 7,320 | 10,350 | 41% | 380 | n/a | n/a |
| Greater Phoenix | | | | | | |
| Computer software engineers, applications | 4,055 | 5,230 | 29% | 158 | 118 | 40 |

Source: Bureau of Labor Statistics

*Job Openings refers to the average annual job openings due to growth and net replacement.

Source: Bureau of Labor Statistics

**N/A is displayed in cases where data is not available or cannot be published because of federal data privacy standards.

An additional source of information regarding this occupation can be provided by analysis of employer survey data collected for the Maricopa County Community Colleges by the ERISS Corporation in 2004. As shown, the ERISS survey data shows a projected 1-year growth rate of 8%, which is higher than the average of 2.9% per year reflected by the BLS data above.

Additionally, the ERISS data provides an indicator of yearly turnover for this occupation, which is reported to be moderate at 7%.

| ERISS Occupational Survey Data (2004) | | | |
|---|--------|----------|--------|
| Greater Phoenix | Growth | Turnover | Demand |
| Computer Software Engineers, Applications | 8% | 7% | 15% |

Comparison of employment projections for top five regions for Computer Software Engineer, Applications

As shown in the table to right, a national comparison reveals the State of Arizona ranks 20th in terms of projected 10-year growth for this occupation (41%).

| RANK | Location | Employment | | Percent Change |
|------|----------|------------|--------|----------------|
| | | 2004 | 2014 | |
| 1 | Nevada | 1,150 | 2,150 | 88% |
| 2 | Utah | 2,970 | 5,260 | 77% |
| 3 | Colorado | 15,520 | 26,800 | 73% |
| 4 | Arkansas | 1,230 | 2,090 | 70% |
| 5 | Idaho | 1,530 | 2,450 | 60% |
| 20 | ARIZONA | 7,320 | 10,350 | 41% |

Source: Bureau of Labor Statistics

Employment by Industry

The table below shows the industries that most commonly employ Computer Software Engineer, Applications, and the proportion of employment accounted for at the national level. As shown, "Computer systems design and related services" is the largest employer for this occupation (28.9%).

| Percent of Employment Nationally by Industry | |
|--|--|
| Percent | Industry |
| 28.9% | Computer systems design and related services |
| 8.6% | Software publishers |
| 4.4% | Management of companies and enterprises |
| 3.1% | Management, scientific, and technical consulting services |
| 3% | Navigational, measuring, electromedical, and control instruments manufacturing |
| 2.8% | Data processing, hosting, and related services |
| 2.7% | Federal Government, excluding Postal Service |

Source: Bureau of Labor Statistics

Geo-Location Overlay of Employers with 10 or More Employees that Potentially Employ Occupation (n = 184)

