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Emerging Industries: Looking Beyond the Usual Suspects: A Report to WIRED

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Citation

Erickcek, George A. and Brad R. Watts. 2007. "Emerging Industries: Looking Beyond the Usual Suspects: A Report to WIRED." Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. https://research.upjohn.org/reports/1

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Emerging Industries: Looking Beyond the Usual Suspects A Report to WIRED

Final Report

September, 2007

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September, 2007

George Erickcek
Brad Watts
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Executive Summary

This report breaks from the standard analysis of emerging industries. In fact, while we provide an analysis of the usual emerging industry suspects we do not identify any emerging industry targets. Moreover, we recommend that the WIRED economic stakeholders step away from this gambit. Instead, we recommend that the area focuses on assisting existing firms to evolve—take on new markets and products—instead of trying to predict what will be the new emerging industries. It is an approach that fits in well with WIRED's focus on innovation, builds on the competencies of the area's core industries, and exploits the region's unique design assets.

The major findings of this analysis are the following:

- It is extremely difficult to predict the future with the necessary degree of accuracy required for a region to wisely invest its economic development assets on one or two emerging industries. Even if the regional stakeholders are right about the industry—alternative energy, life sciences or a host of others—they may still back the wrong horse, as new and unforeseen innovations in competing technologies are making it nearly impossible to identify the potential winner.
- For the greater Grand Rapids-Muskegon-Holland region to grow it must attract and/or grow new products and services to replace those that are forced by strong market forces to leave for less costly locations and those that will become obsolete due to technological change. This challenge is not unique to west Michigan, experts estimate that the life span of a typical product is less than six years. What is clear is that west Michigan will never be and should not want to be the low-cost site for any economic activity.
- According to the Bureau of Labor Statistics (BLS), from 2004 to 2014, U.S. employment is predicted to grow fastest in the following major industry sectors: health-related industries, education, professional & business services, and leisure and hospitality. As a group, these four industries are expected to grow by 2.3 percent annually, and their employment is expected to increase by nearly 12 million jobs. However, these industries have limited abilities to bring new monies into the region.
- The WIRED region's major export firms are in industries facing sluggish, belowaverage national growth. The good news is that, on average, they are more competitive than their national rivals.

- One of the challenges facing the region is that it is still dependent on a manufacturing export base. While many manufacturers offer good-paying jobs and stable employment opportunities, few face growing markets. As long as the region depends on manufacturing for its economic base, it will experience below-average total employment growth.
- Growth in the WIRED region between 2007 and 2017 is expected to be modest, with regional employment performing slightly worse than the U.S. average and slightly better than the rest of Michigan. Total private nonfarm employment in the WIRED region is projected to increase at a 0.7 percent annual average rate, compared to a 0.4 percent rate for Michigan and 1.4 percent nationwide.
- The concept of an emerging industry may be a harmful illusion because it is not so much the industry, but an individual company's leadership and goals that are the catalysts for new products and services. Second, regional economists are in agreement that industrial clusters are the incubators for tomorrow's products and emerging industries. Keeping the region's existing industrial base manufacturing and services—healthy and "young" may be the best option for the region's economic development community.
- The report makes the following recommendations:
 - O **Do not create emerging industry targets**. At best, it is nothing short of gambling and trying to pick winners. At worst, it takes resources away from meaningful efforts to enhance the region's ability to become more innovative across its wide number of industries.
 - Work to enhance and develop existing social clusters and build new ones that allow social networking opportunities that cross industry boundaries.
 Innovation is a local activity which depends upon partnership and face-to-face interactions that can only survive in an atmosphere of trust. It is recommended that "third places" and invocation forums be created and enhanced to encourage the formation and strengthening of formal and informal networks. These networks can and should cut across industries.
 - O Development of a SWOT (Strengths, Weaknesses, Opportunities, and Threats) team of designers, engineers, and industry experts that provide new ideas for companies. The WIRED region holds a wealth of design and manufacturing knowledge that is the envy of other regions. These resources should be used to advance the development of innovation among the region's existing firms. Innovation is a multi-step process from idea generation, production development and design, and marketing. Smaller firms cannot be expected to do it all. A SWOT team of designers, engineers and experts could help generate new ideas which could be the seeds for the development of new products for new markets.
 - o Work with area government units, non-profits, education institutions, and art associations to improve the attractiveness of the region to professional workers. This final recommendation is as challenging as it is important. More and more research supports the observation that talent drives investment. Talented individuals increasingly call the shots and locate where they want; capital expenditures will follow. Regions, that maintain an atmosphere where ideas are in the air, are already ahead in the game; however, more is needed. The region's amenities also matter. The problem is that there is no clear description of

what it takes to have an attractive environment. It may come down to whether there is a "sense" that the area is open to new ideas and diversity.

Introduction

Michigan has lost more than 350,000 jobs since 2000. About half of these job losses occurred during the 2001 recession; however, during the current national expansion, from the first quarter of 2002 to the first quarter of 2007, employers in the state cut 178,000 jobs. Moreover, the short-term forecast for the state is bleak, especially with the national economy starting to slow. The University of Michigan is forecasting that the state's employment totals will continue to decline in 2007 and 2008.

It is not surprising that economic developers are searching for new emerging industries to replace the jobs that have been lost in its traditional industrial sectors, especially automotive. The Michigan Economic Development Corporation (MEDC) and other organizations have identified several reasonable emerging industry targets for the state to pursue; life sciences and alternative energies technologies head most lists. Not surprisingly, these promising industries have made the list in other states as well.

The report suggests an alternative approach: support evolving industries not emerging industries. Instead of taking on the risky game of trying to pick future winners in an increasingly dynamic technological environment, this report recommends the arduous task of encouraging existing industries to become young again—to take on new products and/or enter new markets.

The advantages of such an approach, if successful, are clear. First, it can prolong the employment of the firm's current workforce—it is feasible that a move from making tractor components to wind turbine blades or from the manufacturing of auto parts to medical instruments can be done by retraining existing workers. Second, it adds diversity since it would support the region's firms in determining their own new course, not just the few that have been deemed as the emerging industries for the region.

Emerging Industries—Do You Feel Lucky?

The term "emerging industries" brings to mind industry sectors that are both entirely new and quickly growing in terms of sales and employment. Moreover, emerging industries are often equated with "paradigm shifts." Examples of this perhaps purest type of emerging industry include the automobile industry during the first decades of the 1900s and the personal computer software industry during the 1980s.

At the time, each of these industries was almost entirely new both in terms of the inputs used in the production process and the nature and use of the product in the marketplace. Additionally, these emerging industries brought significant growth, change, and economic prosperity to the locations that happened to be home to concentrations of these developing industries, making the goal of creating or capturing future emerging industries attractive to workers and political leaders.

The concept of emerging industries should be brought down to earth. Many emerging industries are small and/or do not result in substantial change to our environment. Digital cameras, for example, heighten the enjoyment and ability to take pictures and home

movies; however, it has not generated a significant change in our life styles. In sharp contrast, the internet has revolutionized and is still changing the environment of numerous sectors such as retail, finance, telecommunications, business services, medical services, and education.

The major emerging technologies are those that do not limit themselves to any one industry but instead can be adapted to increase performance and productivity in numerous traditional sectors. Although to a certain degree the introduction of the internet did bring about its own industry devoted to providing internet services (think of businesses such as AOL, Prodigy, and CompuServe), its direct impact has been modest in the long-run. Furthermore, industries that have long existed can make a shift to emergent growth due to changes in technology or shifts in demand. For example, the entry of Amazon.com into the book retail market in 1994 changed the way many of us buy books. More than that, it has forged the way in reshaping the retail sector, in that it now offers a wide and growing selection of goods to at-home consumers.

Emerging industries grow not only because of rapid technological change. They can also emerge due to demographic shifts. The growth of the nation's medical industry is due to a powerful combination of medical advancements, an aging population, personal income growth, and preference shifts in demand.

One of the major challenges and fears facing regions in regard to emerging industries is that most emerging industries come at the expense of existing industries and regions. Regions must avoid being identified with an industry that is not in the position to change. Flint, for example, is so identified with and impacted by the auto industry that it may take decades before it can grow or attract a new emerging industry of significant size. One of the more impressive qualities of Silicon Valley is that it was the birthplace of the radio transmission technologies in the 1920s, followed by computers and transistors in the 1950s, and then the dot.coms in the 1990s. It has recreated itself several times over; few other areas have been able be so innovative and loose.

There are winners and losers in emerging industries as well. New drugs replace old, new procedures are advancements over previous methods. Lifecycles can be brief, and promising technologies can become history over night. The environment becomes even more threatening when technological advancement can cross established industry territories. For example, digital technologies seemingly came out of nowhere to radically change the photography and publishing industries.

It is extremely difficult to predict the future with the necessary degree of accuracy required for a region to wisely invest its economic development assets in one or two industries. Even if the region's stakeholders successfully call the industry, they would also have to be "dead on" regarding the technology, and then be able to provide the proper nurturing environment for the industry to expand. For example, it may be a safe bet that the home entertainment industry will continue to grow, but can anyone be secure in knowing what will be the winning technology among the competing systems?

Life science is the field on nearly everyone's short list (currently 32 states) of emerging industries, but there lies the problem. Why will one competing region win over the

others and what emerging sectors or discoveries will become scaleable? For example, a new cancer breakthrough could occur at any one of hundreds of separate medical research institutes. Such a breakthrough could radically change the course of research in the field, leaving some institutes and regions at a disadvantage. At the same time, there is no guarantee that the region making the discovery will capture all the economic gain

Existing industrial clusters, quality of life, and the presence of research universities have all been identified as important ingredients to the development of emerging industries. However, an actual formula of necessary ingredients will likely never be found. And, what will be the life cycle for this new process or instrument? In a matter of a few years, procedures and products are often eclipsed by something better. Finally, the world is full of new products that were the results of mistakes and accidents, for example, Post-it notes. Is it wise for a region to invest in the development of a new emerging industry when the risks and uncertainty are so high?

In short, do you feel lucky?

Regional Considerations for Emerging Industries

Many economists have stressed the importance of understanding the regional consequences of product cycles. In short, as a product proceeds through its lifecycle, its regional focus shifts. New and emerging industries and technologies tend to be born in larger metropolitan areas where knowledge is "in the air." Urban areas that offer a diversity of industries, populations, and cultures, and that house major universities and provide desirable environments for professional workers, tend to generate environments for ideas that can cross established industry lines. While the importance of industrial clusters cannot be ignored, larger urban agglomeration factors may hold sway.

Once a new product or service emerges, the successful ones will experience a growth period. If the company and its new product or service is not purchased by an out-of-area firm, it is possible that it will expand in the region where it was founded. Fledging companies are highly dependent on the established networks of financial resources, suppliers, mentors, and workforces cultivated during its birth.

In the third stage, competitors enter the market with similar products or services, driving down profits and forcing the company to look for more cost-effective locations. Traditionally, this has led the company to explore rural or international locations. The major urban area simply becomes too costly. It is also important to note that the company's workforce also changes; research and development activities are replaced by marketing and production activities. In other words, once the product or service is moved due to cost considerations, it will likely also lose its capacity to develop new products or services. With the move, the company's strategy becomes one of making a commodity and competing on price or quality.

In the final stage the product or service is becomes obsolete, and the company either closes, or merges with another company, or finds a new product or service.

The key implementation of product cycle theory is that for the greater Grand Rapids-Muskegon-Holland region to continue to thrive, it must attract or grow new products or services to replace those that are relocated to less costly locations, i.e. China or Mexico. In a global market, there will always be a cheaper location for an industry to produce commodity products or to deliver simple services.

For region stakeholders and economic developers, additional factors must enter into the equation when identifying possible emerging industry targets. First, will the industry provide employment opportunities for existing residents? If an industry attracts nearly all of its workers from outside the region, then it will provide few employment opportunities for existing unemployed and underemployed regional residents.¹

This is a major concern for industries that require highly skilled workers. Persky suggests that the best case scenario is one where the new industry generates a chain reaction in the region's labor market. Workers in the region move up to take the higher-skilled, better-paid jobs generated by the new company. This opens their former positions to residents who in turn can move up from their current lower-paid positions. The process continues until an unemployed person takes the last job that is vacated. When, a person is hired from outside the region, the chain stops. Hence the opening for a skilled machinist may have a greater impact on the region's labor market than an opening for a research chemist. Of course "indirect and induced" jobs will be created in either case; however, these jobs tend to be low-paying customer service or retail jobs.

Second, an industry's growth does not ensure that it will bring new monies into the region. Health care is expected to be a high-growth sector for years to come due to an aging population, increased wealth, and new advancements in medical treatments and technologies. However, for regions even as large as the greater Grand Rapid-Muskegon-Holland area, much of this growth will be internally driven. New monies will not be attracted into the region as much as existing expenditure patterns will be reallocated as residents spend more and more on health care.³

(W.E. Upjohn Institute, Kalamazoo MI 1991).

Tim Bartik has found that, on average, eight out of every ten jobs created in a region are filled by individuals moving into the region. Who Benefits from State and Local Economic Development Policies

² Persky, Felsenstein and Carlson, *Economic Development Strategies and Job Chains in Local Labor* (W.E. Upjohn Institute, Kalamazoo MI 2004).

³ Nevertheless, it can be true that a growing health care sector can stop monies from leaving the area as local residents who would have gone elsewhere for treatment remain in the area.

So the challenge facing a region in selecting emerging industries is three-fold. It must identify

- 1. High-growth industries that will bring new monies into the region through the sales of their goods or services.
- 2. The winning technology, process, or system which is scalable and has a reasonable lifespan. Emerging industries will likely have competing technologies as well. In other words, you can bet in the right race but back the wrong horse.
- 3. Industries that offer job openings that will likely generate job chains which have the possibility of reaching the under-employed and unemployed.

The last challenge is of particular importance to WIRED as it is focused on creating jobs that are within reach of the region's workforce and on developing the resources to assist the region's workforce to meet the needs of possible emerging industries.

Identifying National and International Economic, Demographic and Technology Trends that Can and Will Impact Regional Growth

Forecasting future economic trends is an art as well as a science, and it is seldom correct. In fact, it is prudent to review the common errors that reoccur in long-term forecasts. First, advancements in technology are consistently underestimated. Past forecasts have underestimated the rate of adoption of new technologies such as the internet for financial and retail transitions and the continuous application of more advanced computer technologies to more and more fields. At the same time, forecasts tend to also underestimate the impact of demographic changes. Immigration and an aging population are two clear and well-established trends, and yet we continue to underestimate their social and economic impacts. Finally, we tend to overestimate the rate of change in the social and economic structure of our economy. Who is not disappointed by the persistence of poverty, the racial separation of our cities, and the growing inequality of income and wealth?

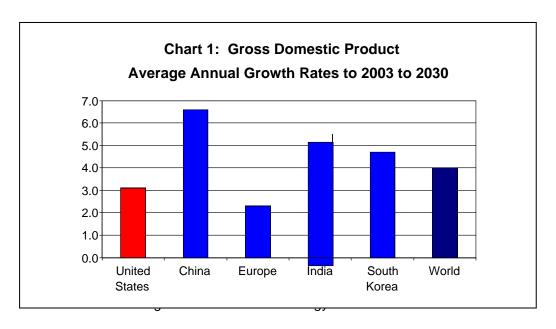
Looking into the future, there are already several economic and demographic trends that must be taken into consideration.

- The population is growing older. Not only are medical advances and better diets helping individuals live longer, but at the same time a large generational shift is occurring as the large "baby boomer" population approaches retirement. This shift to a citizenry that is top-heavy with elderly members will definitely have an effect; however, not all the implications are known. Demand for health care services, retirement housing, and leisure services will most definitely increase. Consumer goods will be modified to meet the needs of an aging population. Other factors that will be impacted are governmental tax and service structures, the real estate market, and, perhaps most importantly, the ability of businesses to find skilled replacement workers.
- Communication technologies will continue to explode. The power and reach of the internet is still unknown; however, the magnitude of the growth is truly amazing relative to other forms of communication. The time it took for the telephone system to reach 50 million people was more than 70 years; it took the internet only four years.

The market for e-commerce was \$2.6 billion in 1996; it grew to an estimate \$300 billion in 2002. Truly, the growth of the WIRED region may depend upon how wired it is.

- The demand for clean, secure, and dependable energy will only grow. Although at the time of this writing the price of crude oil has just dipped back below \$70 per barrel, the expectation is that energy costs will increase dramatically in the future. Multiple factors are behind this long-term assumption, including increased demand for oil and coal by developing nations such as China and India, continued political instability in major oil-producing nations, and growing consumer concern about environmental damage and reliance on imported oil. This could drive continued development of solar, ethanol, bio-fuel, and battery technologies.
- Global warming and other environmental challenges will not go away. If global warming continues unabated, there will be a growing market for green technologies for construction materials and energy generation. The Scientific Committee on Problems of the Environment of the International Council for Science surveyed 200 scientists in 50 countries regarding environmental issues that will arise in the 21st century. Climate change ranked first, followed by the quantity and quality of water resources, deforestation, and decertification.
- The fastest growing areas will be outside the U.S. According to long-term forecasts, the U.S. economy is expected to grow at a slower pace than the rest of the world, with China and India firmly in the lead (Chart 1). With the world's fastest growing markets elsewhere, it is likely that more and more production and administrative functions will move offshore as well. The U.S. will remain a command and control center, as well as a dominant research and development center; however production and administration functions may gravitate where the end product is sold. For example, it seems highly unlikely that at this time a car designed for the markets in China or India can be produced in the U.S.

Competition is increasing. The influence of other parts of the world (European Union and developing giants such as China and India) will continue to increase. Small consumer products are already produced primarily offshore. A large portion of the nation's production machinery is also made abroad.



Product cycle will continue to shrink. More players in the global market make it very likely that both product development and decline will grow at a more rapid pace. As hinted previously, this will likely shorten the life of any new emerging sector and limit its impact. It will not be the region's current line of products or services that will determine its success, but its ability to innovate.

• Partnership will continue to be a major avenue for entering emerging industries. Whether it is exploring new geographies or new uses, the ability to find suitable partners will only grow. Regions that encourage partnering and networking opportunities should be at an advantage.

National Employment Forecasts

Before forecasting what is likely to occur in the Grand Rapids-Muskegon-Holland region it is important to look at what sectors of the national economy are predicted to experience strong growth in the coming years. Industries and occupations that have a good national outlook will always be of importance to the local market, even if the WIRED region does not have a particularly strong presence in the sector at this time. This is because the strength of these high-national-growth industries or occupations is generally not tied to the competitiveness of specific firms or specific regions, but more so to a large-scale shift in demand for the product or service provided by the sector in question.

According to the Bureau of Labor Statistics (BLS), between 2004 and 2014, U.S. employment is predicted to grow fastest in the following major industry sectors: health-related industries, education, professional & business services, and leisure & hospitality (Table 1). As a group, these four industries are expected to grow by 2.3 percent annually and their employment is expected to increase by nearly 12 million jobs. Although they represent approximately 35 percent of 2004 employment, together the BLS predicts that they will account for over 64 percent of total net employment gains over the ten-year

period. Moreover, their expected growth clearly reflects the demographic shifts discussed earlier. A growing segment of the nation's leisure and hospitality and education sectors will be meeting the demand generated by retirees. For example, the University of Michigan is already building residential units for retirees where the monthly rent payment will include class fees.

Table 1: BLS National Nonfarm Employment Forecast 2004 to 2014

Major industry division	Employment 2004	Projected employment 2014	Estimated employment size growth	Annual average growth rate
Total, all industries	132,191,700	150,876,900	18,685,200	1.3%
Goods-producing industries	21,817,300	21,787,300	-30,000	0.0%
Mining	523,200	477,400	-45,800	-0.9%
Construction	6,964,500	7,756,900	792,400	1.1%
Manufacturing	14,329,600	13,553,000	-776,600	-0.6%
Service-producing	110,374,400	129,089,600	18,715,200	1.6%
Utilities	570,100	562,600	-7,500	-0.1%
Wholesale	5,654,900	6,130,800	475,900	0.8%
Retail	15,034,500	16,683,200	1,648,700	1.0%
Transport & warehousing	4,250,000	4,755,900	505,900	1.1%
Information	3,138,300	3,502,100	363,800	1.1%
Financial activities	8,051,900	8,901,300	849,400	1.0%
Professional & business services	16,413,700	20,979,900	4,566,200	2.5%
Private education	2,766,400	3,664,500	898,100	2.9%
Healthcare	14,187,200	18,482,100	4,294,900	2.7%
Leisure & hospitality	12,479,100	14,693,800	2,214,700	1.6%
Other private services	6,209,900	6,943,400	733,500	1.1%
Federal government	2,727,500	2,770,900	43,400	0.2%
State and local government	18,890,900	21,019,100	2,128,200	1.1%

BLS (Nov. 2005). Summary of the projections. Monthly Labor Review.

Employment in manufacturing is expected to continue to decline during the next 10 years due to productivity growth and due to production being moved offshore to meet the growing demand in Asia and other markets as well as to take advantage of lower labor costs.

Of course, within these large, relatively generic industry classifications there exist a huge range of different tasks and skills that are required for workers to fulfill these new employment positions. Shifts in the way goods and services are produced will slowly alter the mix of occupations required for producing goods and services. In addition, uneven demand shifts will also impact the number and type of workers required in a given industry.

The BLS predicts that the biggest increase in share of overall occupations will occur in professional occupations and service occupations (Table 2). On the opposite end of the spectrum, production occupations, office and administrative positions, and sales occupations are predicted to experience the largest decreases in share of total employment during the 10-year period. Most other occupational categories are expected to retain a stable share of total employment.

Major occupational groups that are predicted to increase their share of overall employment are also expected to grow their total employment figures at a faster-than-average rate. As shown in Table 3, professional & related occupations and service occupations are also projected to grow at the fastest annual average rate between 2004 and 2014, 1.9 percent and 1.8 percent respectively. The occupation grouping with the third-largest projected growth rate is for management, business, financial occupations, which is expected to grow at a 1.4 percent annual average rate—just above the 1.3 percent rate for total employment, which is enough to nudge it's predicted 2014 share of employment up 0.1 percent.

Table 2: Projected Occupational Share and Change 2004-2014

	Percent of tot	Percent of total employment		
Major Occupation Group	Share 2004	Share projection 2014	Increase or decrease in share points	
Management, business, financial	10.3%	10.4%	0.1%	
Professional & related	19.6%	21.0%	1.4%	
Service occupations	19.0%	20.0%	1.0%	
Sales	10.5%	10.2%	-0.3%	
Office and administrative	16.4%	15.4%	-1.0%	
Farming, forestry, fishing	0.7%	0.6%	-0.1%	
Construction and extraction	5.3%	5.3%	0.0%	
Installation, maintenance, repair	3.9%	3.9%	-0.1%	
Production	7.3%	6.4%	-0.9%	
Transportation	6.9%	6.8%	-0.1%	

BLS (Nov. 2005). Summary of the projections. Monthly Labor Review.

In the first part of this section, we touted the importance of national employment growth trends to the WIRED area, since they represent opportunities that are likely to be felt across the country, and they tend to be driven by changes in demand or technology.

Table 3: 2004-2014 Occupation Change Rate

Major occupation group	Annual average rate of change
Management, business, financial	1.4%
Professional & related	1.9%
Service occupations	1.8%
Sales	0.9%
Office and administrative	0.6%
Farming, forestry, fishing	-0.1%
Construction and extraction	1.1%
Installation, maintenance, repair	1.1%
Production	-0.1%
Transportation	1.1%

BLS (Nov. 2005). Summary of the projections. Monthly Labor Review.

However, it is important to remember that it is possible for industries and occupations that are not expected to experience significant national growth—indeed sometimes even for industries that are forecast to decline—to maintain a strong demand for workers. This

is the case if the area needs to replace retirees or persons leaving the field. Therefore, for workforce development planning purposes, it is essential to consider not just sectors that are projected to expand but also those that are forecast to have large demand for new workers who retire or leave to pursue different occupations. In fact between 2004 and 2014, various types of replacement openings are predicted to account for nearly two-thirds of all job openings that occur during the 10-year period (Table 4).

Table 4: U.S. Detailed Occupations with the Greatest Number of Replacement Openings Projected 2004-2014

Table 4: U.S. Detailed Occupations with the Greate	<u> </u>	•	(000s) of Workers	
Occupation Title	Change Openings Percent of			T-4-1
Occupation Title	due to	due to	openings that are	Total
	new jobs	replacements	replacements	openings
Retail sales workers	937	3,506	78.9%	4,444
Cashiers, except gaming	108	1,688	94.0%	1,796
Retail salespersons	736	1,547	67.8%	2,283
Information and record clerks	657	1,387	67.8%	2,045
Fast food and counter workers	448	1,235	73.4%	1,683
Other office and administrative support workers	157	1,221	88.6%	1,378
Waiters and waitresses	376	1,159	75.6%	1,534
Laborers and material movers, hand	339	1,146	77.2%	1,485
Cooks and food preparation workers	448	972	68.5%	1,419
Financial clerks	312	920	74.7%	1,232
Other management occupations	280	903	76.3%	1,183
Secretaries and administrative assistants	255	838	76.7%	1,093
Health diagnosing and treating practitioners	1,140	820	41.8%	1,960
Laborers and material movers, hand	248	794	76.2%	1,042
Other production occupations	10	765	98.7%	775
Building cleaning workers	608	752	55.3%	1,360
Office clerks, general	263	695	72.5%	958
Stock clerks and order fillers	-115	694	119.9%	579
Cooks	272	658	70.8%	930
Metal workers and plastic workers	-90	652	116.0%	562
Motor vehicle operators	629	627	49.9%	1,256
Other installation, maintenance, repair occupations	342	612	64.1%	955
Other personal care and service workers	604	611	50.3%	1,215
Assemblers and fabricators	78	538	87.3%	616
Registered nurses	703	501	41.6%	1,203
Sales representatives, wholesale and manufacturing	244	486	66.6%	730
Elementary and middle school teachers	351	464	56.9%	815
Vehicle mechanics and repairers	234	461	66.3%	695
Driver/sales workers and truck drivers	449	453	50.2%	902
Janitors and cleaners, ex maids & housekeeping	440	450	50.6%	890
Health technicians	592	446	43.0%	1,038
Financial specialists	444	443	49.9%	887
Other protective service workers	189	435	69.7%	624
Top executives	375	433	53.6%	808
Miscellaneous assemblers and fabricators	103	398	79.3%	502
Total, all occupations	18,928	35,752	65.4%	54,680

Source: BLS.

As shown in Table 4, these occupations offering a high number of replacement openings represent a variety of occupational areas. Many are low-skill, high-turnover jobs that are often considered entry level positions—such as retail sales workers, cashiers, and waiters & waitresses. However, some of these occupations represent traditional fields such as manufacturing production and office administration, which offer decent wages and benefits to workers without requiring a college degree. Additionally, several high-wage occupations in management and finance appear on this table as well, illustrating the strong opportunities that will exist for college-educated workers.

In summary, the national forecast calls for current well-identified trends to continue: health care and activities related to meeting the needs of an aging population will continue to grow. Manufacturing and low-skilled administrative functions will decline due to both productivity improvements and many of these activities being moved offshore.

The next question is where does the WIRED region fit in this changing national economy?

Economic Conditions in the WIRED Region

Regional economies are supported by "exporting" goods and services to customers located outside the region. The earnings from these export sales are then re-circulated through the region's supplier chains and consumer purchases. Secondary ways that a community can grow are through public and private transfer payments such as retirement income or by import substitution (providing services or making products that were previously purchased from suppliers located outside the region).⁴

In this emerging industry analysis, we focus on identifying those new industries that have the potential of bringing new earnings into the area through their export activities. It is very possible that new entertainment venues, retailers, and consumer services will emerge in the coming years; however, these activities will not generate significant new growth for the region. Instead, their success will come at the expense of their local rivals.

An old adage in regional economics is "tell me your industries and I will tell you your future." Regions which house firms in industries that are enjoying strong national and international growth have a much higher probability of achieving above-average growth than regions which have a significant share of their firms in slow-growing or declining industries. The competitiveness of a region's firms can make a difference; however, a region burdened with industries facing stagnant national and international markets is clearly swimming against a strong negative current.

Unfortunately as shown in Table 5, the WIRED region's major export firms are in industries facing sluggish national growth. The good news is that on average they are more competitive than their national rivals. In this analysis, we used location quotients to identify the region's export industry. An industry's location quotient is calculated by dividing the industry's percent of the region's total workforce by the same industry share of the nation's workforce. If an industry's location quotient is 1.0, the industry's share in the region's economy is the same as its share in the nation's economy, and that it is likely not an industry whose product or service is sold outside the area. In this analysis, the region's dominant export industries were identified as those having a location quotient of greater than 1.5.

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⁴ For an analysis of the growth potential of an import substitution strategy for the region, see Erickeek and Watts. *Market Gap Analysis for the Greater Grand Rapids Area* (W.E. Upjohn Institute, 2007).

Table 5: Specialized Export-Based Industries for the Wired Region

Industry	Percent share of industry in area's employment	Location quotient of industry in area (=share in area divided by share in U.S.)	Percent	Percent employment growth of industry in U.S., 1998-2004	Average annual percent growth of area industry 1998-2004	Average annual percent growth of U.S. industry 1998-2004	BLS projected average annual percent growth of industry in U.S., 2004-2014
All industry	100.0	1.00	-1.2	6.2	-0.2	1.0	1.3
·				Export industries			
Furniture mfg.	2.63	5.45	-44.2	-8.4	-7.2	-1.4	-0.2
Primary metal mfg.	1.43	3.66	-20.7	-30.8	-3.4	-5.0	-2.0
Machinery mfg.	3.08	3.26	-20.7	-28.2	-3.4	-4.6	-1.4
Plastics mfg.	2.31	2.92	0.1	-12.6	0.0	-2.1	-1.0
Transportation equip. mfg.	4.08	2.89	1.6	-16.1	0.3	-2.7	0.5
Leather mfg.	0.10	2.58	-8.2	-58.7	-1.4	-9.6	-2.7
Chemical mfg.	1.56	2.18	-34.7	-9.0	-5.7	-1.5	-0.1
Fabricated metals mfg.	2.59	1.97	-17.7	-18.1	-2.9	-3.0	-0.2
Beverage mfg.	0.22	1.67	130.0	-11.1	29.5	-1.8	-0.7

Furniture tops the list followed by other manufacturing activities. In fact, one of the more important findings in this analysis is that none of the region's export industries produce any type of services. The region's fast-growing health care industry has a location quotient of between 1.01 (hospitals) and 0.92 (ambulatory health care). One of the challenges facing the region is that it is still dependent on a manufacturing export base. While many manufacturers offer good-paying jobs and stable employment opportunities, few face growing markets. As long as the region depends on manufacturing for its economic base, it will experience below-average employment growth.

The fourth and fifth columns in Table 5 show the percent employment growth for the industry in the region and in the nation from 1998 to 2004. This was not a great period for these industries as it includes the 2001 recession and the ensuing weak recovery from 2002 to 2004. Of the nine major export industries, only three recorded employment growth during the period, led by the beverage industry where employment rose by 130 percent. Nationwide, all of the industries which contain the region's major exporters lost employment —again, it is extremely difficult for a region to grow when its major exporters are facing weak national markets.

The challenging situation facing the region is illustrated in Chart 2 below. The vertical axis shows the difference between the region's employment growth and that of its national rivals and is a measure of competitiveness. The horizontal axis measures the national employment growth of the region's industries relative to the U.S. average growth and is a measure of the robustness of the region's major export industries.

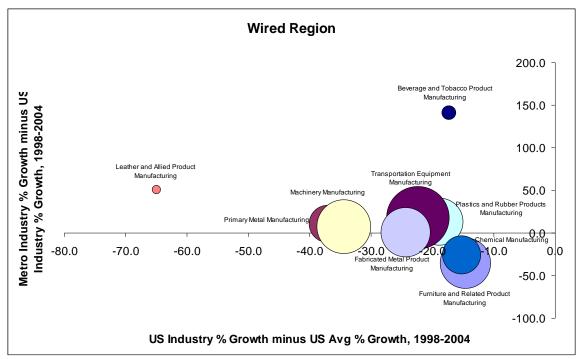
Ideally, a region would like to have highly competitive export firms—ones outperforming their national rivals—in industries facing strong national growth. None of the WIRED major export industry enjoys such an environment. All of them are facing sluggish national markets. However, regional firms in seven of the nine industries bettered their national rival however. Unfortunately, the region's furniture and chemical industries were unable to keep up with their rivals in terms of employment growth during the period.

location quotients of less than one, suggesting that tourism may not be a particularly strong export industry for the region.

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⁵ Some may object that tourism is not included. Tourism does not have its own NAICS code so it cannot be included in the analysis. Nevertheless, all of the industries that are associated with tourism, accommodations, performing arts, eating and drinking places, and amusement and recreation all have

Chart 2



NOTE: Top 9 industries, ranked by metro location quotient, for this region. Average U.S. growth is growth of all industries for U.S. over 1998-2004 time period, which was growth of 6.2%. Bubbles are drawn to be proportional to size of industry share in this region. The horizontal axis shows the percentage growth in the industry's employment in the U.S. compared to the growth of all U.S. industries. Industries to the right of the zero vertical line are growing faster in the U.S. than the average industry. The vertical axis shows the percentage growth in the industry's employment in the area compared to the industry's growth in the U.S. Industries above the zero horizontal line are growing faster in this area than nationally, and the area is gaining market share in these industries. The most attractive industries would be those in the NE quadrant (not shown), in which the area is gaining market share in an above-average national growth industry.

Finally as shown in the last column of the Table 5, all of the region's major export industries are forecasted by the Bureau of Labor Statistics (BLS) to experience sluggish if not negative employment growth from 2004 to 2014.

The previous analysis is not without its flaws. First, it is restricted to major industry groupings. Each of the nine major export industries identified can have subsectors that are doing very well. For example, the region's auto industry (transportation equipment manufacturing) is doing poorly; however, this sector includes Gentex which continues to add jobs and dominate the auto mirror industry. A more detailed analysis, if it were available, would likely show more individual companies and industry sub-sectors that are both highly competitive and facing strong markets. Second, the entire analysis is incomplete because it is restricted to the national economy. All of the region's sectors operate in a global environment. Unfortunately, the lack of a consistent international data base makes such a study impossible.

Michael Porter in his Cluster Mapping Project identified seven concentrated industrial clusters in the WIRED region as shown in Table 6. The cluster rankings were determined on the MSA level and identify those industrial clusters that achieved a national ranking

which was higher than the overall ranking of its MSA. In this analysis we used the ranking of the Grand Rapids-Wyoming MSA, 50th, as the cutoff point. Except for the welcomed introduction of biopharmaceuticals, the list once again points out the dependency of the region on traditional manufacturing activities.

Table 6: Traded Clusters, 2004

Automotive
Metal manufacturing
Plastics
Production technology
Biopharmaceuticals
Analytical instruments
Footwear

Source: Michael Porter Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School.

Finally, the above analysis can give the wrong impression that the WIRED region is dependent only upon a select few industries to attract new dollars into the region. Nothing could be further from the truth. First, almost all of the region's industries have an "export" component as shown in Table 7. Using our REMI model for the region, we estimate the number of employees by industry that is dependent upon the sales of their goods or services to out-of-the-region customers. It is not surprising that more than 80 percent of the employees in the region's furniture, motor vehicles, and machinery industries are dependent upon out-of-region sales. However, this analysis also estimates that more than 3,000 workers in each of the region's hospitals, ambulatory care health centers, retail trade, insurance carriers, and construction sectors are also dependent upon serving the needs of out-of-region customers.

Table 7: Regional Employment Dependent Upon "Exporting" Outside of the Region

Table 7: Regional Employment De				
	National	International	Tota Export	% of Total
Variable	Exports	Exports	Employment	employment
Oil, gas extraction Mining (except oil, gas)	523 314	14 47	537 361	91.8% 89.4%
Transp. Equip. mfg exc. motor vehicles	770	425	1,195	89.1%
Furniture, related product. mfg	13,783	531	14,314	85.2%
Support activities for mining	57	0	57	85.1%
Motor vehicle mfg	14 429	2.810	17 249	83.9%
Motor vehicle mfg. Scenic, sightseeing transp; supp.	14,438 976	2,810 323	17,248 1,299	83.9% 81.2%
Pipeline transportation	185	4	189	80.8%
Machinery mfg.	9,474	4,023	13,497	80.3%
Electrical equip., appliance mfg.	637	201	838	79.4%
Computer, electronic product mfg.	2,764	1,587	4,351	76.2%
Petroleum, coal product. mfg.	20	2	22	75.9%
Textile product mills	384	26	410	75.0%
Textile mills	163	49	212	73.6%
Miscellaneous mfg.	2,132	635	2,767	72.2%
Wood product mfg.	1,649	81	1,730	71.8%
Food mfg.	5,841	398	6,239	70.9%
Nonmetallic mineral product mfg.	2,934	277	3,211	68.9%
Leather, allied product mfg.	378	128	506	68.6%
Air transportation	81	70	151	66.2%
Accommodations	2,137	1	2,138	63.7%
Rail transportation	262	58	320	62.1%
Chemical mfg.	3,165	1,038	4,203	60.6%
Primary metal mfg.	3,162	591	3,753	58.2%
Transit, ground pass. transp.	663	1	664	57.1%
Fabricated metal product mfg.	7,518	979	8,497	57.1%
Plastics, rubber product mfg.	4,367	586	4,953	55.5%
Truck transp., couriers, messengers	4,461	855	5,316	54.5%
Apparel mfg.	43	6	49	53.8%
Beverage, tobacco product mfg.	273	16	289	52.2%
Forestry et al.	295	80	375	52.2%
Warehousing, storage	524	19	543	50.7%
Insurance carriers, related activities	5,375	196	5,571	49.9%
Broadcasting, exc. Int; telecomm.	1,789	63	1,852	44.0%
Paper mfg.	1,007	223	1,230	42.1%
Educational services	6,615	52	6,667	41.3%
Printing, related support activities	1,142	62	1,204	35.2%
Rental, leasing services	65	748	813	27.6%
Sec, comm contracts, inv	1,573	255	1,828	26.8%
Administrative, support services	12,439	259	12,698	25.1%
Wholesale trade	4,377	2,876	7,253	24.1%
Waste mgmnt. Remed. services	388	1	389	22.5%
Motion picture, sound rec.	111	135	246	20.6%
Mgmnt. of companies, enterprises	736 3,327	801 3	1,537	20.3% 16.5%
Hospitals	3,327	3	3,330	10.5%
Publishing, exc. Internet	283	103	386	13.5%
Ambulatory health care services	3,398	2	3,400	12.0%
Membership assoc., organiz.	1,209	15	1,224	10.1%
Nursing, residential care facilities	1,299	0	1,299	10.1%
Professional, technical services	2,211	650	2,861	8.9%
Social assistance	1,052	0	1,052	8.4%
Amusement, gambling, recreation	622	1	623	8.4%
Utilities	164	8	172	7.4%
Museums, et al. Construction	41 3,171	0 6	41 3,177	7.4% 7.2%
Monetary authorities, et al.	502 561	215	717 561	7.0%
Personal, laundry services Retail trade	561 4.730	0 80	561 4.810	5.9% 5.8%
Real estate	4,730 1,010	80 11	4,810 1,021	5.8% 5.3%
Performing arts, spectator sports	1,010	14	1,021 139	5.3% 3.5%
Food services, drinking places Agriculture	784 29	50 7	834 36	2.0% 1.8%
Repair, maintenance	147	3	150	1.5%
Internet service, data proc., other	5	4	9	1.3%
Source: W.E. Uniobn Institute			9	1.5/0

Source: W.E. Upjohn Institute

In conclusion, the standard analysis of the region's current situation is not promising. Its major exporters are competitive but are also facing stagnant national markets. In addition, cluster analysis suggests that the region's major industrial clusters including biopharmaceuticals are in manufacturing. Still, it would be wrong to focus on these traditional bulwarks of the region for future growth and moreover, it is incorrect and harmful to believe that regional earnings are only gained from a few industries. Export possibilities can emerge in almost all industries which draw into question the soundness of an emerging industries check list.

Regional Forecast

While national trends reviewed above are important to consider, the workforce development goals of WIRED are focused on the economy in the seven-county greater Grand Rapids region. Therefore, we have developed a custom employment forecast for the region from 2007 to 2017 using the Upjohn Institute REMI⁶ model. This forecasting model is based on macro economic growth trends, as well as the unique industrial and occupational mix that constitutes the region. The following assumptions were used in generating this forecast:

- The national economy (GDP) will grow at a 2.8 percent average annual rate during the period.
- The automotive sector will continue to decline in Michigan as Detroit-based companies and their suppliers continue to suffer market share losses.
- Overall growth (or decline) of all other industries will depend on national and
 international growth trends and the relative cost structure of local firms. In other
 words, all Michigan industries, with the exception of automotive, are presumed to
 follow macro trends based on their strength, cost structure, and productivity, and are
 not tied to locally-specific firm trends.

Growth in the WIRED region between 2007 and 2017 is expected to be modest, with regional employment performing slightly worse than the U.S. average and slightly better than the rest of Michigan. Total private nonfarm employment in the WIRED region is projected to increase at a 0.7 percent annual average rate, compared to a 0.4 percent rate for Michigan and 1.4 percent nationwide (Chart 3).

A look at regional growth within major industry sectors shows that total employment growth between 2007 and 2017 is expected to be concentrated in a few select sectors, while many industries maintain flat employment or even decline. The vast majority of new jobs—around 70 percent of the 43,500 total new jobs expected during the period—are forecast to be in the health care and social services industry (Table 8). Other industries adding a significant number of new jobs include administrative and waste services with 12 thousand new jobs, followed by private education services and the hospitality, recreation, and food service sectors. Offsetting these gains are the expected losses in manufacturing, wholesale, and retail, along with several other small sectors.

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⁶ For more information on REMI see the Appendix A.

Chart 3: Forecast Regional Employment Growth and Assumed State and National Trends, 2007 to 2017

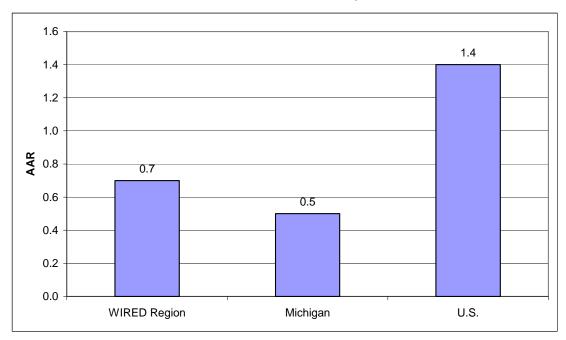


Table 8: WIRED Region Major Industry Employment Growth Forecast

	Thousan	ds of Jobs		
Industry Sector	2007 Estimate	2017 Forecast	Change	Annual average growth rate
Total Private Non-farm	646	690	44	0.7%
Natural Resources	3	3	0	-1.1%
Utilities	2	2	0	-2.4%
Construction	43	47	4	0.9%
Manufacturing	125	112	-13	-1.1%
Wholesale	31	27	-4	-1.3%
Retail	85	84	-1	-0.1%
Transport & Warehouse	16	17	2	0.9%
Information	8	8	0	0.0%
Financial	49	51	2	0.4%
Professional & Business	40	43	2	0.5%
Administrative	51	63	12	2.1%
Private Education	16	21	5	2.6%
Health & Soc Svcs	80	111	30	3.2%
Hospitality & Recreation	60	64	5	0.8%
Other Services	37	38	1	0.2%

Taking a look at more detailed sector data reveals that most jobs will be created by subsectors of major industries that are also expected to experience significant growth. The following two tables list the top ten winners and losers in terms of sector job growth that is forecast to occur between 2007 and 2017 (Tables 9 and 10).

Table 9: Ten Biggest Growth Sectors in the Region

Detailed Sector	Projected change in employment 2007-2017
Ambulatory health care services	13,899
Administrative, support services	11,205
Nursing, residential care facilities	6,538
Hospitals	5,926
Private educational services	4,673
Construction	4,061
Social assistance	3,842
Food services, drinking places	2,967
Prof, tech services	2,746
Amusement, gambling, recreation	1,198

Table 10: Ten Regional Sectors Facing the Biggest Decline

Detailed Sector	Projected change in employment 2007-2017
Motor vehicle manufacturing	-4,463
Wholesale trade	-3,703
Machinery manufacturing	-2,299
Fabricated metal prod manufacturing	-2,263
Furniture, related prod manufacturing	-1,730
Chemical manufacturing	-819
Retail trade	-818
Primary metal manufacturing	-759
Repair, maintenance	-682
Management of companies, enterprises	-515

of course, each of these industries, whether growing or contracting, employs workers in a variety of tasks. The occupations expected to grow most in size over the next ten years are those closely associated with high-growth industry sectors (Table 11).

Table 11: Large Growth Regional Occupations

Detailed Sector	Projected change in employment 2007-2017
Health diagnosing and treating	6,808
Nursing & home health	4,088
Health technicians	3,801
Construction trades	3,135
Other healthcare support	2,903
Other personal care	2,698
Food and beverage serving	2,342
Information clerks	2,235
Postsecondary teachers	2,174
Computer specialists	2,009
Counselors, social workers	1,895
Building cleaning and pest control	1,637
Primary, secondary, and special ed	1,609
Business operations specialists	1,547
Other protective service workers	1,414
Other management occupations	1,178
Motor vehicle operators	1,171
Other teachers and instructors	1,003

Many other occupational groups are expected to grow in size over the next ten years, however at a slower pace (Table 12). This group of occupations is more diverse and contains positions that are less likely to be specifically associated with high-growth industries. Indeed, many of the positions in this category of growth consist of workers who serve multiple industries (such as top executives, marketing & advertising workers, or administrative assistants) or those who serve the general population (such as cooks, personal appearance workers, and retail sales).

The slowest growing occupations—those adding, on average, no more than a few new jobs to the region each year—can still represent an important group for workforce development. As shown in Table 13, some of these occupations are also population-driven service positions such as firefighting. However, many of these occupations posting small growth numbers are in fields that are highly specialized and/or require high levels of formal education such as a graduate degree. Despite growing by only a few jobs per year, many of these positions may actually be quite difficult to fill. Furthermore, because of the small base of workers currently in some of these occupations, the forecast rate of increase is actually quite high; for example, an increase of 78 life science workers represents an 8.5 percent increase, while 88 new life, physical, social science positions represents a 5.4 percent gain.

Table 12: Other Growing Regional Occupations

	Projected change
Detailed Sector	in employment
	2007-2017
Grounds maintenance workers	810
Other education, training, library workers	789
Top executives	782
Cooks and food prep	766
Financial specialists	700
Other installation, maintenance, repair	682
Operations specialties managers	538
Personal appearance workers	446
Law enforcement workers	416
Other food preparation and serving	376
Advertising, marketing, promotions	350
Other healthcare workers	348
Occupational and physical therapist	337
Other sales and related workers	297
Supervisors, food prep & service	295
Retail sales workers	292
Entertainment attendants	279
Other construction trades	269
Entertainers and performers, sports	253
Supervisors, construction	239
All other counselors, social, and religious	238
Supervisors, sales workers	228
Social scientists	219
Helpers, construction trades	215
Lawyers, judges, and related	198
Media and communication occupations	173
Supervisors, building & grounds crews	168
Supervisors of personal care workers	157
Art and design occupations	133
Religious workers	132
Administrative assistants	130

Table 13: Slow-growing Regional Occupations

Detailed Sector	Projected change in employment 2007-2017	
Life, physical, and social sci techs	88	
Legal support workers	87	
First-line supervisors, protective svcs	87	
Fire fighting and prevention	81	
Life scientists	78	
Media & communication equip op	73	
Animal care and service workers	67	
Librarians, curators, archivists	67	
Transportation, tourism, and lodging	39	
Physical scientists	28	
Other transportation workers	28	
Funeral service workers	23	
Supervisors of installation & repair workers	21	
Extraction workers	20	
Architects, surveyors, and cartographers	19	
Sales representatives, services	14	
Food processing occupations	14	
Air transportation occupations	14	
Printing occupations	14	
Supervisors, office & administrative	12	
Mathematical science occupations	5	

Finally, there are always the unfortunate occupational categories that are forecast to decline in number throughout the region during the next ten years (Table 14). Most of these types of jobs are tied to either the troubled manufacturing sector or to other traditional shrinking industries such as agriculture and natural resources. Also, a few occupations such as communications equipment operators, electronic equipment operators, and other office and administrative positions may be shrinking due to continued technological advancements.

Table 14: Occupations Shrinking in the Region

Detailed Sector	Projected change in employment 2007-2017
Water transportation occupations	-1
Supervisors, transportation	-2
Financial clerks	-14
Supervisors, farming, fishing, forestry	-25
Fishing and hunting workers	-36
Rail transportation occupations	-43
Electrical and electronic equipment	-63
Drafters, engineering, and mapping	-94
Communications equipment operators	-112
Plant and system operators	-115
All other farming, fishing, forestry	-149
Textile, apparel, furnishings	-188
Sales representatives, wholesale	-206
Engineers	-210
Vehicle mechanics	-212
Other office and administrative	-213
Supervisors, production workers	-236
Woodworkers	-505
Other production occupations	-557
Material moving occupations	-723
Agricultural workers	-764
Material recording, scheduling, dis	-1,628
Metal workers and plastic workers	-2,805
Assemblers and fabricators	-3,204

One occupation that is forecast to decrease in size within the WIRED region that may surprise some readers is engineering. Although engineering occupations are doing well nationally, with the BLS predicting above-average 13.4 percent growth between 2004 and 2014, locally many engineering positions are tied to the automotive sector, which is forecast to continue struggling for the foreseeable future. Therefore, our modeling predicts that the number of engineers employed in the WIRED region is likely to decline by about 210 workers—2.9 percent—by 2017.

Emerging Industries, Potential Impacts

Key Characteristics of Favorable Emerging Industries

The identification of specific emerging industries is difficult and risky. Common and reasonable lists include life sciences, alternative energies including bio-fuels, solar, wind, and batteries. Nevertheless, they have common characteristics that most would agree a promising emerging industry should hold:

- It is facing strong national and global marketplaces. Services for retirees, medical products, and low-cost energy generation are all facing strong markets. It is important to note that none of these markets are "fad" markets that have little staying power.
- It is sustainable. Production of goods or services should not come at the expense of exhausting nonrenewable resources nor should it generate toxic byproducts.
- It is a part of the region's base economy. The activity should bring new monies into the economy by selling to customers who are located outside the region, attracting customers into the region, or stopping dollars from leaving the region.
- It builds upon the existing industrial strengths of the region. Since Alfred Marshall in the 1880s, regional scientists have stressed the importance of agglomerative economies. Today the buzz is about industrial clusters and the new economic geography, but the concept is still the same. In general, activities tend to evolve from the region's existing industrial structure.
- It offers employment opportunities that are attainable to the region's current workforce. An often-stated fear is that the new knowledge-based economy will leave many behind because their skills and training will be obsolete. This does not need to be the case. The manufacturing of new products, wind turbines, bio-fuels and medical instruments will require many of the manufacturing skills already acquired by the region's workforce. Second, many growing fields such as medical have positions open that are attainable by existing workers who are willing to attend one or two years of training.

Even if an activity has all of these attributes, there remains a severe danger in that the region could pick the right race but bet on the wrong horse. In a world of competing technologies, management approaches, cost structures, and simply luck, it is quite

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⁷ Marshall, *Principles of Economics*, London Macmillen 1890. Marshall recognized more than 100 years ago that urban areas offer an "external" environment where ideas and knowledge could flow between firms and individuals.

possible that a region's stakeholders will identify the industries but be unsuccessful in nurturing a winner.

What Are Other States Doing?

Many states are targeting the same emerging industries. We have researched the economic development efforts of all 50 states and found that 62 percent of the states including Michigan have life sciences or biotechnology as a targeted industry (Table 15). Michigan is among the 23 states that are targeting advanced manufacturing activities and is one of 11 states that are seeking to attract energy-related activities.

While it is possible that each state has prepared careful economic analyses that support their chosen targets, it is also very likely that a bandwagon effect is in play. Regardless of how the industries were selected, it is clear that there is a crowded field. Regions will have an increasingly hard time in separating themselves from the pack.

Table 15: Targeted Industries by State

Michigan X<	Tourism Film	Nanotechnology
State science/Biotech Manufacturing Technology Aerospace Services Energy Warehousing Agriculture/Food Electronics Defense Automotive Total Control Michigan X X X X X X X Alabama X X X X X	Tourism Film	Nanotechnology
State science/Biotech Manufacturing Technology Aerospace Services Energy Warehousing Agriculture/Food Electronics Defense Automotive Technology Michigan X X X X X X Alabama X X X X	Tourism Film	Nanotechnology
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Colorado X X X X X		
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Maine		
Massachusetts X X X	Х	
Minnesota X		
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Montana X		
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New Mexico X X X X X X X X	Х	
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South Dakota X X X		
Tennessee X X X X X X		
Texas X X X X X X X X X		
Utah		Х
Virginia		Х
West Virginia X X X X X X X X X X		
Wisconsin X X		
TOTALS 32 24 16 12 12 12 11 10 8 8 6	5 5	5
Percent 64% 48% 32% 24% 24% 24% 22% 20% 16% 16% 12%	10% 10%	10%

Source: W. E. Upjohn Institute

Potential Impact

The potential impact of an emerging industry depends on whether it successfully attracts new dollars into the region. As discussed previously, industries such as restaurants, which cater to our more hectic lifestyles or outpatient surgery centers may emerge as fast-growing sectors but will not significantly add to the growth of the region. As shown later, some of the region's faster-growing industries have very modest impacts on the area's overall growth.

To estimate this impact we used the Upjohn Institute's REMI economic model of the region to generate employment multiplier estimates. Employment multipliers are the ratio of the total employment impact of a business on the region and its direct impact—the number of persons it employs. For example, if the region's total employment increases by 200 due to the firm adding 100 workers, then the firm has a multiplier of 2.0. As shown below, multipliers can reveal a lot regarding how important an industry is to the growth of the region as well as how integrated it is.

In Table 16 we present the estimated firm multipliers for several high-growth industries. The firm multiplier takes into account the possible displacement impacts of its growth on existing firms. For example, the success of a new restaurant will likely come at the expense of existing restaurants. Indeed, if a new large restaurant hires 100 additional workers, the net overall impact for the seven-county region is 15 jobs. The other 85 jobs will be offset by employment reductions at competing restaurants.

Table 16: Selected Firm Employment Multiplier

Industry Sector	Multiplier
Motor vehicles and parts	2.93
Furniture	1.75
Food products	2.05
Hospitals	0.56
Hospitality	0.44
Food services	0.15
Internet and data services	0.76
Performing arts and sport events	0.75
Private education services	1.07
Professional and technical services	0.93

Regarding hospitals, if a region's hospital adds 100 workers and everything remains the same, on net, only 56 additional jobs will be added to the regional economy due to other hospitals downsizing in response to the expansion. Now for hospitals, everything else is NOT holding constant; we are getting older and population growth is positive. If the expansion is in line with expected increase in demand, then the displacement effect will not be a factor. This is shown in Chart 4 below. Industry employment is forecast to grow during the time period of 2006 to 2015. An expansion that results in greater employment than can be supported by the expected growth will lead to only a modest overall impact in employment.

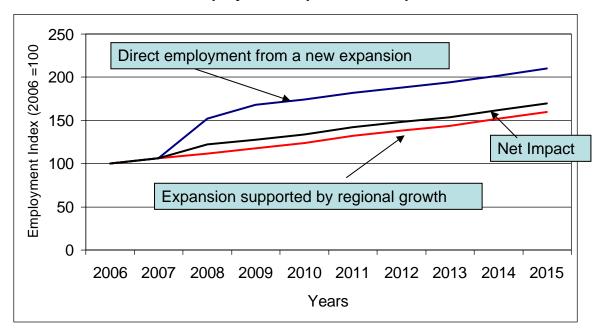


Chart 4: Employment Impact with Displacement

In considering what effect emerging industries could have on the WIRED region, it is important to understand that the overall impact relies both on the current industrial linkages in the region and the ability of a new emerging industry to succeed in the region. Another way of looking at the prospect of picking an emerging industry to champion—an approach we do not necessarily recommend—is to look at it from the perspective of gambling: the odds of success and the rewards of success are not equal across industries.

To illustrate this difference, we have developed REMI model estimates of the employment multiplier effect of job growth in several emerging industries that are frequently touted by government and business leaders as potential future sources of growth. Although truly emerging industries are extremely difficult to model, given the fact that they are too new as to have well-understood supplier linkages, much can still be said about the local industrial concentrations and typical wage structures of the general industrial categories in which many emerging industries reside. Indeed, for the most part emerging industries that have currently been identified must, by their very nature, exist in some form—usually as a new subset of an existing industry or as an established sector that is poised to experience significant change or growth.

Table 17: Estimated Employment Multiplier Effect of Select Industries in WIRED Region

Emergent Industry Classification	Employment Multiplier
Battery technology	3.3
Medical instruments	2.8
Pharmaceuticals	4.1
Electrical transformers and technology	2.6
Hospitals	2.0
Electromedical devices	3.1
Research and development	2.1

Of seven high-profile, high-tech industries that we were able to model (Table 17), the estimated employment multiplier is highest for pharmaceuticals, because of the combination of high-wage positions and the number of production inputs demanded from other businesses within the region. Battery technology, electro-medical devices (electrical medical instruments), and medical instruments (non-electrical and standard medical instruments) also have a strong regional impact due to their wages and/or locally derived production inputs.

Another perhaps more revealing way of thinking about industries that have high multiplier effects is to realize that this means they are part of a larger industrial cluster. Employment multipliers capture two linkages that an industry has with its area. The first represents the impact of consumer spending by its workers; this varies directly with the level of pay. The second is more relevant to the issue at hand in that it captures the industrial linkages the industry has with it local suppliers. In short, industries with large employment multipliers are in a more clustered environment. This is important as research findings show that industry clusters provide a comparative advantage.

The lowest multiplier effects are expected from jobs created in hospitals and research and development; both sectors that provide services and demand relatively fewer inputs. Additionally, hospital, medical instruments, and R&D services employ workers across a wide range of skill and wage levels. For example, although one may think of hospitals as being filled with highly compensated surgeons, in reality a large number of support workers such as nurse aides, administrative assistants, and custodians are required for their operation.

Finally, despite their struggles in recent years, both the automotive sector and office furniture industry continue to have a strong impact on the WIRED region. The multiplier effect of employment expansion in either autos or office furniture, 3.3 and 2.9 respectively, would have an impact that is equal to or greater than most of the long-shot emerging industries so far discussed. If local firms were able to capture additional market share or develop new products for the industry, the impact would be substantial.

Table 18: Multiplier Effects of Existing Local Specialties

Existing Industry Sector	Employment Multiplier
Motor vehicle parts	3.3
Office furniture	2.9

Occupational Demand for a Select Number of Emerging Industries Candidates and Current Export Industries

One of the overriding goals of WIRED is to assist the region's education providers in establishing the necessary training programs that will meet the needs of the area's fast-growing, export industries. In this section, we present detailed occupational demand forecasts for the following export and high-growth industries:

- Pharmaceutical and medicine manufacturing (Table 19)
- Motor vehicle parts manufacturing (Table 20)
- Office furniture (including fixtures) manufacturing (Table 21)
- Medical equipment and supplies manufacturing (Table 22)
- Computer systems design and related services (Table 23)
- Management, scientific and technical consulting services (Table 24)
- Scientific research and development services (Table 25)
- Medical and diagnostics laboratories (Table 26)

In Appendix B, we provide a skills breakdown for the thirty occupations which are expected to experience the greater demand in each of these industries

.

Table 19: PHARMACEUTICAL AND MEDICINE MANUFACTURING

Occupation	2004	2014
Packaging and filling machine operators and tenders	77	67
Chemists	50	49
Medical scientists, except epidemiologists	36	40
Biological technicians	28	29
Mixing and blending machine setters, operators, and tenders	27	28
Chemical equipment operators and tenders	27	27
Business operation specialists, all other	23	26
First-line supervisors/managers of production and operating w		26
Inspectors, testers, sorters, samplers, and weighers	27	25
Sales representatives, wholesale and manufacturing, technical	21	21
Separating, filtering, clarifying, precipitating, and still machine	21	21
Maintenance and repair workers, general	20	21
Executive secretaries and administrative assistants	18	17
Managers, all other	17	17
Chemical technicians	16	17
Team assemblers	16	17
Natural sciences managers	16	17
Laborers and freight, stock, and material movers, hand	16	15
Secretaries, except legal, medical, and executive	17	15
Computer systems analysts	13	15
General and operations managers	13	13
Industrial production managers	13	13
Packers and packagers, hand	13	13
Biochemists and biophysicists	13	13
Industrial machinery mechanics	11	11
Microbiologists	11	11
Life, physical, and social science technicians, all other	10	10
Accountants and auditors	10	10
Production, planning, and expediting clerks	10	10
Shipping, receiving, and traffic clerks	11	10
Chemical plant and system operators	10	10

Table 20: MOTOR VEHICLE PARTS MANUFACTURING

Occupation	2004	2014
Team assemblers	165	172
First-line supervisors/managers of production and operating workers	34	35
Cutting, punching, and press machine setters, operators, and tenders, metal and	42	35
Inspectors, testers, sorters, samplers, and weighers	36	33
Machinists	32	33
Multiple machine tool setters, operators, and tenders, metal and plastic	26	27
Assemblers and fabricators, all other	28	27
Tool and die makers	25	26
Industrial truck and tractor operators	26	24
Welders, cutters, solderers, and brazers	22	23
Industrial engineers	18	21
Maintenance and repair workers, general	20	21
Molding, coremaking, and casting machine setters, operators, and tenders, metal	22	21
Computer-controlled machine tool operators, metal and plastic	19	20
Laborers and freight, stock, and material movers, hand	21	20
Production workers, all other	23	19
Engineers, all other	17	17
Welding, soldering, and brazing machine setters, operators, and tenders	15	15
Electricians	14	15
Engineering technicians, except drafters, all other	14	15
Industrial machinery mechanics	14	14
Lathe and turning machine tool setters, operators, and tenders, metal and plastics	15	14
Engine and other machine assemblers	13	13
Business operation specialists, all other	12	13
Electrical and electronic equipment assemblers	12	12
Mechanical engineers	12	12
Shipping, receiving, and traffic clerks	12	11
HelpersProduction workers	10	11
Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders	11	10
Drilling and boring machine tool setters, operators, and tenders, metal and plastics	11	10

Table 21: OFFICE FURNITURE (INCLUDING FIXTURES) MANUFACTURING

Team assemblers 120 128 Cabinetmakers and bench carpenters 96 94 First-line supervisors/managers of production and operating workers 43 45 Woodworking machine setters, operators, and tenders, except sawing 44 37 Cutting, punching, and press machine setters, operators, and tenders, metal and 37 31 HelpersProduction workers 27 29 Laborers and freight, stock, and material movers, hand 29 28 Welders, cutters, solderers, and brazers 26 27 Sales representatives, wholesale and manufacturing, except technical and scienti 23 24 Coating, palmting, and spraying machine setters, operators, and tenders 19 18 Industrial truck and tractor operators 17 18 18 Carpenters 16 17 18 17 Shipping, receiving, and traffic clerks 18 17 16 General and operations managers 16 17 16 Molding, coremaking, and casting machine setters, operators, and tenders, metal 17 16 Maintenance and repair workers, gene	Table 21: OFFICE FURNITURE (INCLUDING FIXTURES) MANUFA Occupation	2000	2014
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	Production, planning, and expediting clerks	10	10

Table 22: MEDICAL EQUIPMENT AND SUPPLIES MANUFACTURING

Occupation	2000	2014
Dental laboratory technicians	117	120
Team assemblers	115	119
First-line supervisors/managers of production and operating workers	33	34
Inspectors, testers, sorters, samplers, and weighers	31	29
Ophthalmic laboratory technicians	26	27
Customer service representatives	21	22
Medical appliance technicians	21	21
Assemblers and fabricators, all other	21	20
Packers and packagers, hand	19	20
Shipping, receiving, and traffic clerks	19	18
Sewing machine operators	17	17
Machinists	17	17
General and operations managers	16	16
Sales representatives, wholesale and manufacturing, technical and scientific pro	15	15
Office clerks, general	15	14
Sales representatives, wholesale and manufacturing, except technical and scienti	13	14
Production, planning, and expediting clerks	13	14
Truck drivers, light or delivery services	13	13
Molding, coremaking, and casting machine setters, operators, and tenders, metal	14	13
Industrial engineers	12	13
Packaging and filling machine operators and tenders	14	13
Computer-controlled machine tool operators, metal and plastic	12	13
Bookkeeping, accounting, and auditing clerks	12	11
Multiple machine tool setters, operators, and tenders, metal and plastic	11	11
Mechanical engineers	11	11
Maintenance and repair workers, general	11	11
Laborers and freight, stock, and material movers, hand	12	11
Electrical and electronic equipment assemblers	10	10
Executive secretaries and administrative assistants	10	10
HelpersProduction workers	10	10
Industrial production managers	10	10

Table 23: COMPUTER SYSTEMS DESIGN AND RELATED SERVICES

Occupation	2000	2014
Computer software engineers, applications	117	136
Computer software engineers, systems software	76	88
Computer systems analysts	76	81
Computer programmers	98	78
Computer support specialists	73	71
Network and computer systems administrators	35	39
Network systems and data communications analysts	25	32
Computer and information systems managers	31	32
Customer service representatives	31	31
General and operations managers	29	28
Management analysts	21	21
Office clerks, general	21	18
Executive secretaries and administrative assistants	18	16
Sales representatives, services, all other	16	16
Sales representatives, wholesale and manufacturing, technical and scientific pro	20	15
Database administrators	12	13
Computer specialists, all other	13	13
Bookkeeping, accounting, and auditing clerks	14	12
Business operation specialists, all other	11	12
Acountants and auditors	11	10
Computer hardware engineers	10	10

Table 24: MANAGEMENT, SCIENTIFIC AND TECHNICAL CONSULTING SERVICES

Occupation	2000	2014
Management analysts	124	128
Office clerks, general	47	43
General and operations managers	37	37
Customer service representatives	35	37
Executive secretaries and administrative assistants	38	35
Business operation specialists, all other	23	27
Secretaries, except legal, medical, and executive	28	23
Employment, recruitment, and placement specialists	22	23
Computer software engineers, applications	18	23
Bookkeeping, accounting, and auditing clerks	24	22
Accountants and auditors	20	21
Computer systems analysts	16	19
Market research analysts	17	17
Sales representatives, services, all other		17
First-line supervisors/managers of office and administrative support workers	18	16
Telemarketers	17	14
Computer software engineers, systems software	11	14
Computer support specialists	12	12
Laborers and freight, stock, and material movers, hand	12	11
Environmental scientists and specialists, including health	15	11
Sales and related workers, all other	10	10
Computer programmers	12	10
Environmental engineers	10	10
Network systems and data communications analysts	7	10

Table 25: SCIENTIFIC RESEARCH AND DEVELOPMENT SERVICES

Occupation	2000	2014
Computer software engineers, systems software	17	20
Medical scientists, except epidemiologists	16	18
Executive secretaries and administrative assistants	15	15
Biological technicians	14	14
General and operations managers	12	12
Business operation specialists, all other	10	11
Computer software engineers, applications	9	11
Chemists	11	10
General and operations managers	10	10
Chemists	10	10
Computer software engineers, applications	8	10
Mechanical engineers	10	10
Business operation specialists, all other	9	10

Table 26: MEDICAL AND DIAGONOSTIC LABORTORIES

Occupation	2000	2014
Medical and clinical laboratory technologists	111	136
Medical and clinical laboratory technicians	105	106
Healthcare support workers, all other	103	103
Radiologic technologists and technicians	87	88
Customer service representatives	39	40
Couriers and messengers	40	32
Billing and posting clerks and machine operators	36	29
Receptionists and information clerks	28	27
Diagnostic medical sonographers	24	26
Office clerks, general	28	25
Medical assistants	23	24
Medical secretaries	26	23
First-line supervisors/managers of office and administrative support workers		19
Medical and health services managers	17	17
Data entry keyers	20	15
Physicians and surgeons	14	14
Bookkeeping, accounting, and auditing clerks	14	13
Medical transcriptionists	12	13
Sales representatives, services, all other	12	12
General and operations managers	12	12
Truck drivers, light or delivery services	10	10
Executive secretaries and administrative assistants		10
Bill and account collectors	10 10	10
Medical records and health information technicians	10	10

Occupational Commonalities in Emerging Industries

From the perspective of workforce development, it may be better to focus on common needs that are likely to arise regardless of what industries emerge as future growth drivers, than it is to pick the winner ahead of time. Indeed, there are a number of occupations that are likely to increase in demand if any of the emergent industries discussed so far actually do arise in the WIRED region. These may not be all high-growth occupations overall, as are the occupations discussed earlier in the *Regional Growth Forecast* section of this report. Instead, they represent occupations that will be necessary to support the growth of potential emerging industries (Table 27).

Table 27: Occupations Common to Select Emerging Industries

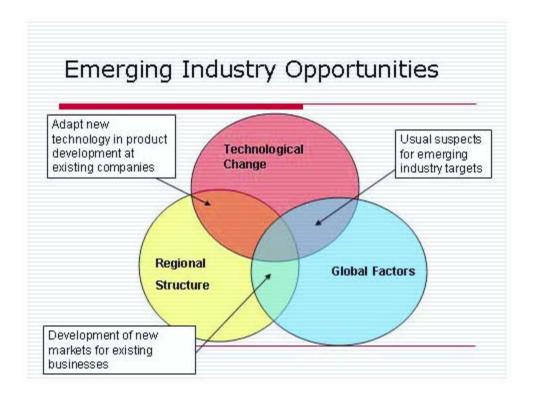
Assembly and production workers
Computer specialists
Material moving workers
Sales, finance, and executive positions
Engineers

Occupations that are expected to be demanded regardless of what industry actually emerges represent the core of business and manufacturing operations. Of course, although there will likely need to be some specialization—e.g. production workers in a pharmaceutical facility may need different skills than those producing medical instruments—the important fact to acknowledge is that there will continue to be a significant demand for talented adaptable workers with general knowledge of business operations, technology, and production.

Conclusions and Recommendations

The success of the WIRED region will depend upon its ability to navigate the changing economic seas that are constantly being agitated by global factors, technological change, and the health of its regional structure. It is how these three forces interact that could reveal promising opportunities of innovations. There are three overlapping areas:

- 1. Usual suspects —overlap of technological change and global factors.
- 2. Development of new marketing opportunities for existing businesses
- 3. Adaptation of new technology in product development in existing companies.



Can Emerging Industries Be Identified Successfully?

In terms of identifying specific industries that will experience explosive future growth, we believe the answer to this key question is "highly unlikely." There are several major challenges to developing a list of emerging industry targets for the WIRED region. First, emerging industries are not the same as high-growth industries. As discussed above, many of the faster growing sectors such as health care are not good sources of new growth for the region, since much of the demand is population driven. A targeted emerging industry should have the potential to become a dynamic component of the region's export base.

Second, even if the region targets the right emerging industries, such as alternative energy or biopharmaceuticals, it is very risky for it to back a particular technology or field. Emerging markets are highly dynamic arenas with competing technologies that can generate as many losers as winners. Batteries, wind turbines, bio-fuels compete today just as steam and the internal combustion engines battled it out in the early1900s. Also, what about nuclear fusion and hydrogen? Someone will likely lose, but whom? Third, regions enter a crowded field when they decide to pursue life sciences, alternative energies, or the other usual, emerging-industry suspects (see Table 15). Many of these industries have already been widely recognized as having growth potential by states and metro areas across then nation, meaning the competition to attract activity is already fierce. This does not mean that an area cannot successfully compete for a piece of the action, however the costs may be large. The sad fact is that in the end not all regions will be winners, regardless of the intensity of their efforts.

Finally, there is a degree of randomness that cannot be ignored. Industries emerge due to the creativity of their founders who can reside almost anywhere. The regions that can attract and retain creative individuals, regardless of their field or interests, will have a better chance of becoming the birthplace of a new emerging industry simply because there are more "rolls of the dice" in terms of people and interactions that could bring about something new. Of course, this is the path set forth by Richard Florida and his focus on the importance of attracting the "creative class." Nevertheless, even if a region does everything right and becomes a creative community, it only increases the probability that something could happen.

It is tempting to jump on the bandwagon and compete in the realm of known emerging industries. The Van Andel Institute and GVSU's Michigan Alternative and Renewable Energy Center are outstanding facilities that do hold promise for the region. Nevertheless, we believe that the region must look beyond the usual suspects. Attention should be given to creating the resources and environment for west Michigan firms, regardless of industry, to become innovative, take risks and to introduce new products and services to new markets. The greatest gain from emerging industries will come if the Grand Rapids region is able to capture the growth of a new technology from day one, instead of attempting to attract activity long after the potential of a new industry has been recognized.

Importance of Social Clusters

While there are wonderful success stories of businesses entering and accelerating in new fields, recent economic development research suggests that new industries do not emerge, instead they evolve from the area's existing economic clusters. In other words, the region's industry clusters are its incubators for new products and services. *Your future partially rests on how well you build on the past*. No one would be surprised if the next best thing in office furniture systems is born in west Michigan. However, we would all be surprised if the next best computer software application is developed on the eastern shores of Lake Michigan. It is possible and would be exciting, but it runs counter to current economic development thinking.

Numerous books and articles have recently been published on the geography of innovation⁹ and most support Porter and Krugmann's research that argues the importance of industrial clusters.¹⁰ As shown previously in Table 6, according to Porter, west Michigan's industrial clusters include office furniture systems and automotive. However, they also include some lesser known clusters: plastics, biopharmaceuticals, analytical instruments, and footwear.

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⁸ Florida, *The Rise of the Creative Class. And How It's Transforming Work, Leisure and Everyday Life.* Basic Books, 2002.

⁹ These include Sheshinski, Strom and Baumol ed., *Entrepreneurship, Innovation, and the Growth Mechanism of the Free-Entreprise Economy*, Princeton University Press, Princeton, NJ 2007; Breschi and Malerba ed. *Clusters, Networks and Innovation*, Oxford University Press, 2005; and Steiner ed *Clusters and regional specialization: On geography technology and networks*. Oxford University Press, 1998

¹⁰ Porter, *The Competitive Advantage of Nations*, Macmillan, London, 1990 and Krugman *Geography and trade*, MIT Press, Cambridge 1991.

There are two important ingredients for a dynamic industry cluster: physical assets and social assets. The physical assets are measured in efficiency and agglomeration. Social assets include networking and partnerships. Competing industries locate next to each other to build a mutually beneficial supplier base, attract a specialized labor supply and training resources, and to steal ideas, concepts and people from each other. These physical attractors are important, but they also can grow rigid. Pittsburgh's steelmakers became struck in an obsolete method of steel production. The Big Three were blindsided by Toyota and other foreign competitors. In short, commodity producers, in their drive to remain lean and competitive, can develop strong physical clusters, but, they run the risk of diminishing the industry's social assets that are key to supporting innovation. These social assets include the networking and partnership opportunities which can generate Marshall's "air of ideas."

The social aspect of clusters is surprisingly strong. Although information can be shared on the internet anywhere in the world, physical space still matters. Theoretically, a person residing in Outer Mongolia can research and track the patent active of any U.S. company as long as there internet service is available. She can also collaborate with her colleague in Lima, Peru. However, research shows that this is not what happens. "The diffusion of information is a process embedded in location." It is more likely that these two individuals will meet in one of the nation's major urban areas. Why else are individuals willing to pay outrageous rents to be in places like San Francisco, Boston, New York, or Seattle? In addition, why are employers willing to pay higher wages than they would if they were located in other parts of the country? The answer is that these areas seem to maintain an "air of ideas" which provides benefits for the individual and firm alike.

Social clusters are built on trust which, in many respects, is the ultimate gain from social capital. There are identified conditions for trust: First, ideas must flow both ways. In fact, networks are innovative only when new ideas flow in both directions. Second, new ideas seldom stick the first time around. They may have to be repeated several times before they are given their full due. This means that the networks must be open to repetition. New partners must be introduced into the network to keep the flow of ideas coming. *Most importantly, research suggests that the benefits of social clusters decline with the loss of innovativeness.* Two competing *commodity* producers do not have the incentive of entering a social cluster because they have little to gain from sharing.

Recommendations

Based on the findings of this analysis, we offer four recommendations for consideration.

A. Do not pick emerging industry targets.

For reasons cited throughout this report we cannot recommend the establishment of emerging industry targets. At best, it is nothing short of gambling and trying to pick

¹¹ Cowen. "Network Models of Innovation and Knowledge Diffusion," in Breschi and Malerba *Cluster, Neworks and Innovation* Oxford University Press 2005 pg 31.

winners. At worst, it takes resources away from meaningful efforts to enhance the region so that it will become more innovative across its wide number of export industries.

B. Work to enhance and develop existing social clusters and build new ones that allow social networking opportunities that can cross industry boundaries.

IRN, in its excellent analysis, *Global Supply Chain Evolution Analysis*, highlights the challenges facing the WIRED region's export industries in keeping their existing clusters intact. Global pressures are forcing some firms to discontinue long-standing partnerships in order to gain cost reductions on commodities. This can inflict great long-term harm on the uniqueness of the region. Only if innovation is constantly injected into the process, can the region's existing clusters be maintained. If an industrial cluster becomes rigid or focused on standardized production, then its days in the region are limited and the likelihood of new product emergence declines.

The development of social clusters to serve as a conduit of new ideas and innovation is vital. However, these conduits depend upon the health, strength and reach of networks both formal and informal. The innovation process calls upon the tacit and noncodificable nature of technology – the importance of experience and the cumulative nature of learning.

Because innovation highly depends on tacit knowledge it is site focused and will occur on a firm-to-firm basis. Innovation is product-specific, and it must be encouraged across a wide range of the region's firms for the region to remain competitive. In addition, it is a local game: spatial proximity encourages the creation and diffusion of knowledge, especially new knowledge which is unstructured and mostly tacit in nature and can be best transferred by personal contact.¹²

Of course, innovative ideas can be generated internally; however, the difference between innovative firms and innovative communities is the presence of a strong and functional social cluster. In spite of the near-zero cost of global communication, face-to-face interaction still holds value.

The development of learning economies consists of both forming partnerships and opportunities to have face-to-face interactions between firms. However, this communication will only achieve its maximum potential in an air of trust. In short, ideas can only float in an atmosphere of trust, for if the partners within the cluster can trust each other, this reduces the ever present fears of one member appropriating the new idea or innovation.

Addressing the issue of social clusters is not easy. The development of "third places" would be a step in right direction. ¹³ Current programs such as the Right Place's Fourth Friday series and its ongoing manufacturing councils are very good beginnings. Nevertheless, we recommend a new initiative: *Grand Rapids Brain Storming*. It would

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¹² Elsie L. Echeverri-Carroll and William Brennan, "Are Innovation Networks Bounded by Proximity" in Fischer et.al *Innovation*, *Networks and Localitiesm*, Springer, Berlin, 1999 pgs. 28-49.

¹³ Third places are locations which are separate from home and the traditional workspace. They can include coffee bars, hotel lobbies, and outdoor sitting areas. They offer a neutral location where ideas and opinions can be shared.

host regular meetings of invited leaders of innovative firms across a wide range of industries. Participants would come together to hear and comment on new ideas that are generated by guest speakers or members of the group. It is a must that the new initiative be led by two to three "champions"—highly-regarded individuals representing innovative companies. If it isn't, other potential participants may lose interest and be unwilling to make the time to attend the meetings. Efforts should be made to encourage and assure new blood is constantly injected into the group and that an air of trust is maintained. Even if this initiative is not adopted, it remains true that the region could benefit from additional efforts to foster interaction both across industries and from places traditionally outside the current west Michigan social structure. For example, bringing together individuals from different occupations, industries, and backgrounds could slowly begin to generate social networks not currently active in this region.

C. Development of a SWOT team of designers, engineers, and industry experts that provide new ideas for companies.

Again, it is our belief that most innovations occur on the product level and must be encouraged across as many industries as possible. Unfortunately, too many of the west Michigan businesses are busy struggling to keep their current production as lean as possible just to survive in today's highly competitive environment.

In addition, smaller firms are at a disadvantage. "Firms, especially smaller firms, that lack appropriate in-house R&D facilities have to develop and enhance their absorption capacity by means of other sources, such as learning from customers and suppliers, by interacting with other firms and taking advantage of knowledge spillovers from other firms and industries." The effectiveness of the region's drive to promote and nurture innovation will rest on its ability to generate the means to increase innovation capacity.

We understand and appreciate the importance of operating as leanly as possible and the role of Michigan Manufacturing Technology Center-West (MMTC-W) is fundamental and should be supported. Nevertheless, if new innovation and design are not thrown into the mix, a sole focus on lean manufacturing can be a path that leads to making a strictly commodity grade product. The firm's short-term survival is more ensured, but without product innovations, its long-term success is threatened.

Many researchers have focused their efforts on understanding innovation. We believe that Hansen and Birkinshaw's supply chain concept is helpful in mapping WIRED potential. They suggest that the innovation process occurs in three steps: idea generation, product development, and marketing. Too many good ideas fail to be fully developed. Too many innovative products never reach their market potential. And finally, too many boring products do make it to market. A successful company, therefore, cannot focus solely on its core capabilities, but should address its weakest links in the innovation chain. Idea companies must focus on production and marketing.

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Manfred M. Fischer, "The Innovation Process and Network Activities of Manufacturing Firms" in Fishcer, Suarez-Villa and Steiner (ed) *Innovation, Networks, and Localities*, Springer, Berlin 1999. pg 16.
 Hansen and Birkinshaw, "The Innovation Value Chain" Harvard Business Review, June 2007 pp. 121 to

Marketing companies must focus on product development. Finally, good product makers must partner or expand their marketing departments and idea generation capabilities.

This supply chain concept fits in well to Nambisan and Swahney's concept of an innovation bazaar. Companies face a spectrum of opportunities in pursuing innovation. At the one end of the spectrum are the raw ideas that can be generated internally or externally. These ideas and concepts are not ready for product development or markets but may hold tremendous potential. At the other end, companies can purchase market-ready innovation from another company or simply partner with or purchase the innovative company. This is a low-risk, high-cost solution, while the former is a high-risk, low-cost approach. Of course, time is also a factor; if a company is in a high-pace industry, it may not be able to afford to wait for concepts to reach their potential. In these instances it is better to buy market-ready ideas and rely on your marketing and distribution systems. Worse yet, a company's executive team may believe that time allows for only cost-saving innovations for their existing product line.

The economic development community could make use of its unique mix of manufacturing and product designers and engineers and create a SWOT (Strengths, Weaknesses, Opportunities and Threats) team that would conduct a one- or two-day SWOT evaluation of a participating company's products or services and generate a report suggesting ideas on new products, new applications, and new markets. The report would be confidential and strict non-compete agreements would be followed. Of course, it would be the company's decision to pursue any of the ideas put forth in the evaluation. In our interviews with several company CEOs, we found interest in participating with such a program.

It is likely that the major challenge facing this proposed activity is getting the approval of the companies' management teams. In fact, Kanter has found that it can be the company's CEO who is the major barrier to innovation, as he may try to control idea generation. ¹⁷ In short, "to get more successes, you have to be willing to risk more failures." No one likes risk and innovation is risky; however, a prudent act of cost and process control can, in fact, simply add to long-term risk. Communication, not control, is the key element to successful innovation. Informal networking, internally and externally, are important steps to innovation. Unfortunately, managers can feel threatened by new ideas and, therefore, nix the process.

D. Work with area government units, non-profits, education institutions, and art associations to improve the attractiveness of the region to professional workers.

This recommendation is clearly outside the mission of WIRED. Nevertheless, the Grand Rapids-Muskegon-Holland region is competing for talent. Human capital will only grow in importance relative to physical capital in the coming years. A region's urban landscape, willingness to accept diversity, and its overall sense of place will become more and more important as the region seeks to become a sticky place in an increasingly

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¹⁶ Nambisan and Sawhney, "A Buyer's Guide to the Innovation Bazaar" Harvard Business Review, June 2007 pp 109 to 118.

¹⁷ Kanter, "Innovation: the Classic Traps," Harvard Business Review, November 2006 reprint RO611C.

slippery world. Talent can pick their location and in making a decision, the Grand Rapids region is likely to be compared, fairly or not, to locations such as Chicago and Ann Arbor. Moreover, it is clear when looking at the more successful metro areas that cost of living is a secondary consideration. To compete in the knowledge-based world, the quality of the urban, suburban, and rural environment matters greatly. The West Michigan Strategic Alliance (WMSA) Regional Indicators Efforts is a great first step in examining the issue but more needs to be done.

Last Words

Although the world is becoming flatter in terms of technology, it is also becoming more uneven in terms of opportunity and income. Thousands of workers in west Michigan have worked hard and productively in making furniture, auto parts, food products, and a host of other goods. Unfortunately, in today's global environment, their skills may become obsolete and their employment opportunities, outside of their current employer, dim. Creating an environment for the region's existing manufacturing firms to explore new markets and develop new products is, in short, assisting them to evolve into new industries. If successful, a firm's transition into a new industry would not only be reenergizing, it could increase its profitability. More importantly, it will likely enable them to retain their existing workforce. Of course, retraining will likely be required; however, this is a better outcome for its workers and community than an alternative approach which attracts new professionals while, at the same time, allows others to face a long spell of unemployment and a lifetime of low earnings.

Finally, addressing the future of the region is going to require changes to both the supply and demand sides of the workforce. On the demand side, economic and community development efforts should work to develop an environment for innovation and rapid adoption of new products, technologies, and ideas. We believe an economically thriving region is the best way to support a strong workforce. Additionally, this environment must recognize the importance of making itself socially open and physically attractive if the region is going to bring in the best and brightest new residents.

On the other side of the equation, workforce development efforts will struggle if the focus remains on only traditional job skill training and placement. The existing workforce may be best served by efforts to develop flexibility, adaptability, and general learning capabilities if they are to take advantage of employment opportunities associated with emerging industries. Simple productivity and efficiency training will not be enough to ensure employment in the long-term.

Appendix A

W.E. Upjohn Institute REMI Economic Model for the Greater Grand Rapids-Muskegon- Holland MSA

The W.E. Upjohn Institute maintains an economic computer model especially designed to estimate the economic impact of changes in the greater Grand Rapids area which includes the three metropolitan areas of Grand Rapids—Wyoming (Kent, Newaygo, Ionia, and Barry counties), Muskegon—Norton Shores (Muskegon County) and Holland—Grand Haven (Ottawa County). The model was constructed by Regional Economic Models Incorporated (REMI) and contains three separate components that together capture the resulting total impact on the local economy because of a change in employment. These components are:

- an input-output model that estimates the impact on the local economy of changes in inter-industry purchases. This component of the model captures the impact of an increase in orders to local suppliers of goods and services as well as the impact of households increasing their purchases of consumer goods and services.
- a relative wage component that estimates the impact of the expected changes in the
 area's cost structure due to changes in economic activity. For instance when a major
 employer moves into the area, it can cause wages to increase across almost all
 industries due to the increased demand for workers and other local resources. This
 boost in wages, while generating additional consumption expenditures, increases the
 cost of doing business in the area, making the area slightly less attractive to other
 industries.
- a forecasting and demographic component that forecasts the resulting changes in future employment and population levels due to a change in economic activity.

Appendix B

Team assemblers

47.00/
17.2%
Handling and Moving Objects
Controlling Machines and Processes
Communicating with Supervisors, Peers, or Subordinates
Identifying Objects, Actions and Events
Inspecting Equipment, Structures or Material
Getting Information
Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Wear Common Protective or Safety Equipment
Importance of Being Exact or Accurate
Spend Time Making Repetitive Motions
Spend Time Standing
Face-to-Face Discussions
Time Pressure
Work With Work Group or Team
Sounds, Noise Levels Are Distracting or Uncomfortable
2
Attention to Detail
Dependability
\$11.60
\$24,120
Slower than average (0-9%)

Industrial engineers

	industrial engineers
% Projected Employment	
Skills	Critical Thinking
	Active Listening
	Time Management
	Reading Comprehension
	Complex Problem Solving
Abilities	Oral Expression
	Deductive Reasoning
	Oral Comprehension
	Problem Solving
	Mathematical Reasoning
	Inductive Reasoning
	· · · · · · · · · · · · · · · · · · ·
Manta Antivitian	Speech Clarity
Work Activities	Communicating with Supervisors, Peers, or Subordinates
	Making Decisions and Solving Problems
	Interacting With Computers
	Getting Information
	Analyzing Data or Information
	Establishing and Maintaining Interpersonal Relationships
	Processing Information
Work Context	Face-to-Face Discussions
	Telephone
	Duration of Typical Work Week
	Importance of Being Exact or Accurate
	Electronic Mail
	Wear Common Protective or Safety Equipment
	Work With Work Group or Team
	Contact With Others
	Impact of Decisions on Co-workers or Company Results
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Structured versus Unstructured Work
	Freedom to Make Decisions
Job Zone	4
Work Styles	Attention to Detail
	Analytical Thinking
	Dependability
	Initiative
	Adaptability/Flexibility
	Integrity
	Persistence
	Cooperation
	Leadership
	Achievement/Effort
	Independence
Work Values	Achievement
vvoin values	Independence
Morte Noods	
Work Needs	Ability Utilization
	Autonomy
	Creativity
	Responsibility
	Activity
	Authority
	Achievement
	Working Conditions
Modian Wagas Hourly	\$32.05
Median Wages Annual	\$66,670
Projected Growth	Average (10-20%)
i rojecieu Growin	7 (* 6) ago (* 6 26 76)

First-line supervisors/managers of production and operating workers

% Projected Employment	<u> </u>	or production and operating workers
Skills	Active Listening	
	Reading Comprehension	
	Management of Personnel Reso	ources
	Instructing	
	Monitoring	
	Speaking	
	Time Management	
	Critical Thinking	
	Judgement and Decision Making	n
	Coordination	9
Abilities	Oral Expression	
7 iomaco	Oral Comprehension	
	Problem Sensitivity	
Work Activities	Communicating with Supervisor	s Peers or Subordinates
VV OIN / TOUVILLOO	Making Decisions and Solving F	
	Coordinating the Work and Activ	
	Guiding, Directing, and Motivating	
	Getting Information	ig Subordinates
	Monitor Processes, Materials, o	r Curroundings
		<u> </u>
	Organizing, Planning, and Priori	=
	Resolving Conflicts and Negotia	
	Developing and Building Teams	
	Scheduling Work and Activities	
	Training and Teaching Others	_
	Coaching and Developing Other	
	Judging the Qualities of Things,	
	Inspecting Equipment, Structure	
	Establishing and Maintaining Int	
111 1 0	Identifying Objects, Actions, and	d Events
Work Context	Face-to-Face Discussions	
	Contact With Others	
	Duration of Typical Work Week	
	Responsible for Others' Health	
	Responsibility for Outcomes and	
	Wear Common Protective or Sa	fety Equipment
	Time Pressure	
	Work With Work Group or Team	1
	Telephone	
	Freedom to Make Decisions	
	Frequency of Decision Making	
	Importance of Being Exact or Ad	ccurate
	Impact of Decisions on Co-work	ers or Company Results
	Structured versus Unstructured	Work
	Sounds, Noise Levels Are Distra	acting or Uncomfortable
	Electronic Mail	
	Coordinate or Lead Others	
	Pace Determined by Speed of E	Equipment
Job Zone	3	
Work Styles	Dependability	Initiative
_	Leadership	Persistence
	Self Control	Analytical Thinking
	Attention to Detail	Concern for Others
	Stress Tolerance	Independence
	Integrity	Achievement/Effort
	Cooperation	Innovation
	Adaptability/Flexibility	
Work Values	1 9	
Work Needs	Authority	
	Responsibility	
	Autonomy	
	Co-workers	
Madian Wagaa Hourly	\$22.18	
Median Wages Annual		
Projected Growth	Slower than average (0-9%)	
i rojootoa Olowiii	SISWEL MAIL AVELAGE (U-3/0)	

Machinists

	Macimilists
% Projected Employment	
Skills	Operation and Control
	Operation Monitoring
	Mathematics
	Equipment Selection
	Troubleshooting
	Reading Comprehension
	Quality Control Analysis
	Equipment Maintenance
Abilities	Problem Solving
	Arm-Hand Steadiness
	Information Ordering
	Near Vision
Work Activities	Controlling Machines and Processes
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Wear Common Protective or Safety Equipment
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Importance of Being Exact or Accurate
	Face-to-Face Discussions
	Spend Time Standing
	Exposed to Hazardous Equipment
	Indoors, Not Environmentally Controlled
	Contact With Others
	Time Pressure
	Freedom to Make Decisions
	Frequency of Decision Making
	Duration of Typical Work Week
	Responsibility for Outcomes and Results
Job Zone	3
Work Styles	Attention to Detail
	Analytical Thinking
	Dependability
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$16.51
Annuai	\$34,350
Projected Growth	Slower than average (0-9%)

Multiple machine tool setters, operators, and tenders, metal and plastic

O/ Dunington Translation	0.70/
% Projected Employment	
	Quality Control Analysis
	Operation and Control
	Repairing
	Equipment Maintenance
	Operation Monitoring
	Troubleshooting
	Learning Strategies
	Critical Thinking
	Coordination
Abilities	Control Precision
	Information Ordering
	Manual Dexterity
Work Activities	Controlling Machines and Processes
	Repairing and Maintaining Mechanical Equipment
	Getting Information
	Handling and Moving Objects
	Inspecting Equipment, Structures, or Material
Work Context	Wear Common Protective or Safety Equipment
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Duration of Typical Work Week
	Exposed to Hazardous Equipment
	Face-to-Face Discussions
	Pace Determined by Speed of Equipment
	Importance of Being Exact or Accurate
	Spend Time Standing
	Time Pressure
	Work With Work Group or Team
	Contact With Others
	Exposed to Minor Burns, Cuts, Bites, or Stings
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Independence
	Initiative
	Persistence
Work Values	
	Moral Values
Hourly	\$14.32
Median Mades ————	\$29,780
	Slower than average (0-9%)

Tool and die makers

Skills Equipment Selection Mathematics Troubleshooting		1001 and die makers
Mathematics Troubleshooting Abilities Work Activities Controlling Machines and Processes Getting Information Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Median Wages Median Wages Median Wages Median Wages Annual Values Control Processes Control Processes Safety Equipment Face-to-Face Discussions Safety Equipment Face-to-Face Discussions Importance Face-to-Face Discussions Face-to-Face Discussions Face-to-Face Discussions Importance Face-to-Face Discussions Face-to-Face Discussions Importance Face-to-Face Discussions Face-to-Face Discussions Importance Face-to-Face-to-Face Discussions Importance Face-to-Face Discuss Fa		
Troubleshooting Abilities Work Activities Getting Information Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Median Wages Hourly \$20.95 Annual \$43,580	Skills	
Abilities Work Activities Controlling Machines and Processes Getting Information Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing ### Work Styles ### Attention to Detail Dependability Initiative Independence Cooperation ### Work Values ### Work Needs ## Moral Values #### Moral Wages ### ### ### Moral Values #### #### ###########################		Mathematics
Work Activities Controlling Machines and Processes Getting Information Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Moral Values Median Wages Hourly \$20,955 Annual \$43,580		Troubleshooting
Getting Information Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Nalues Median Wages Hourly \$20.95 Annual \$43,580	Abilities	
Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly 43,580 Median Wages Hourly 43,580	Work Activities	Controlling Machines and Processes
Face-to-Face Discussions Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly \$20.95 Annual \$43,580		
Importance of Being Exact or Accurate Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing ### Mork Styles** ### Attention to Detail Dependability Initiative Independence Cooperation #### Work Nalues** #### Moral Values ###################################	Work Context	Wear Common Protective or Safety Equipment
Exposed to Hazardous Equipment Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing ### Job Zone Mork Styles		Face-to-Face Discussions
Exposed to Contaminants Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly \$20.95 Annual \$43,580		Importance of Being Exact or Accurate
Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles 4 Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages 443,580 Structured versus Unstructured Work Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration to Make Decisions Freedom to Make Week Freedom to Make Decisions Freedom to Make Decisions Freedom to Make Decisions Freedom to Make Decision Making Time Pressure Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Freedom To Making Time Pressure Time Pressure Freedom To Making Time Pressure Time Pressur		Exposed to Hazardous Equipment
Freedom to Make Decisions Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Annual \$43,580		Exposed to Contaminants
Sounds, Noise Levels Are Distracting or Uncomfortable Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zon= 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Median Wages Hourly \$20.95 Annual \$43,580		Structured versus Unstructured Work
Duration of Typical Work Week Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages # Hourly \$20.95 Annual \$43,580		Freedom to Make Decisions
Physical Proximity Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Median Wages Hourly \$20.95 Annual \$43,580		Sounds, Noise Levels Are Distracting or Uncomfortable
Time Pressure Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly 43,580		Duration of Typical Work Week
Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly \$20.95 Annual \$43,580		Physical Proximity
Frequency of Decision Making Telephone Contact With Others Spend Time Standing Job Zone 3 Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly \$20.95 Annual \$43,580		Time Pressure
Telephone Contact With Others Spend Time Standing		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Contact With Others Spend Time Standing Job Zone		Frequency of Decision Making
Spend Time Standing 3		Telephone
		Contact With Others
Work Styles Attention to Detail Dependability Initiative Independence Cooperation Work Values Work Needs Moral Values Median Wages Hourly \$20.95 Annual \$43,580		Spend Time Standing
Dependability Initiative Independence Cooperation	Job Zone	3
Initiative Independence Cooperation	Work Styles	Attention to Detail
Independence		Dependability
Cooperation Work Values Moral Values Wedian Wages Hourly 43,580		Initiative
Work Values Work Needs Moral Values Median Wages Hourly Annual Hourly \$43,580		Independence
Work Needs Moral Values Median Wages Hourly 420.95 Annual 43,580		Cooperation
Median Wages Hourly \$20.95 Annual \$43,580	Work Values	
Median Wages Annual \$43,580	Work Needs	Moral Values
- Annuai \$43,580	Median Wages Hourly	\$20.95
Projected Growth Much slower than average (negative growth)	Annual	\$43,580
	Projected Growth	Much slower than average (negative growth)

Business operation specialists, all other

% Projected Employment 1.3%			
Skills			
Abilities			
Work Activit	ties		
Work Conte	ext		
Job Zone)		
Work Style	Work Styles		
Work Value	Work Values		
Work Need	Work Needs		
Median Wages -	Hourly	\$26.22	
Wedian Wages	Annual	\$54,550	
Projected Growth		Faster than average (21-35%)	

Welders, cutters, solderers, and brazers

	110.00.0, 00.00.0.0, 00.00.0.0
% Projected Employment	2.3%
Skills	Reading Comprehension
	Quality Control Analysis
	Learning Strategies
Abilities	Arm-Hand Steadiness
Work Activities	Handling and Moving Objects
	Controlling Machines and Process
	Getting Information
	Performing General Physical Activities
	Inspecting Equipment, Structures, or Material
	Identifying Objects, Actions, and Events
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Wear Common Protective or Safety Equipment
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Face-to-Face Discussions
	Exposed to Contaminants
	Importance of Being Exact or Accurate
	Indoors, Not Environmentally Controlled
	Spend Time Standing
	Contact With Others
	Time Pressure
	Work With Work Group or Team
	Physical Proximity
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Self Control
	Independence
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$14.90
Annuai	
Projected Growth	Slower than average (0-9%)

Maintenance and repair workers, general

	Maintenance and repair workers, general
% Projected Employment	
Skills	Equipment Maintenance
	Repairing
	Troubleshooting
	Active Listening
	Installation
	Equipment Selection
Abilities	Problem Sensitivity
Work Activities	Inspecting Equipment, Structures, or Material
	Performing General Physical Activities
	Repairing and Maintaining Mechanical Equipment
Work Context	Face-to-Face Discussions
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Freedom to Make Decisions
	Telephone
	Contact With Others
	Spend Time Standing
	Indoors, Environmentally Controlled
	Wear Common Protective or Safety Equipment
	Exposed to Minor Burns, Cuts, Bites, or Stings
	Structured versus Unstructured Work
Job Zone	3
Work Styles	Dependability
	Attention to Detail
	Cooperation
	Self Control
	Integrity
	Initiative
	Analytical Thinking
	Concern for Others
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$15.01
- Annuai	\$31,210
Projected Growth	Average (10-20%)

Computer-controlled machine tool operators, metal and plastic

% Projected Emp		2.00/
% Projected Emp. Skills	ioyinent	
Skills		Operation Monitoring
		Operation and Control
		Quality Control Analysis
A 1 '11'4'		Active Listening
Abilities		Hearing Sensitivity
		Problem Sensitivity
		Reaction Time
Work Activiti	ies	Controlling Machines and Processes
		Inspecting Equipment, Structures, or Material
		Getting Information
Work Conte	ext	Wear Common Protective or Safety Equipment
		Importance of Being Exact or Accurate
		Spend Time Standing
		Exposed to Contaminants
		Sounds, Noise Levels Are Distracting or Uncomfortable
		Time Pressure
		Frequency of Decision Making
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
		Importance of Repeating Same Tasks
		Exposed to Hazardous Equipment
		Work With Work Group or Team
		Face-to-Face Discussions
		Pace Determined by Speed of Equipment
		Duration of Typical Work Week
		Spend Time Making Repetitive Motions
		Freedom to Make Decisions
Job Zone	ļ	2
Work Style		Attention to Detail
	-	Dependability
		Cooperation
Work Values		
Work Needs		Moral Values
		Activity
	Hourly	\$14.91
Wedian Wades ——	Annual	\$31,010
Projected Gro		Much slower than average (negative growth)
i rojected die	/ V V (I I	muon siowor triair avorage (negative growth)

Engineers, all other

	U ,		
% Projected Employment 1.7%			
Skills			
Abilities			
Work Activities			
Work Context			
Job Zone			
Work Styles	Work Styles		
Work Values	Work Values		
Work Needs			
Median Wages Hourly	v \$37.09		
- Annua			
Projected Growth	Average (10-20%)		

Engineering technicians, except drafters, all other

J J		
nent 1.5%		
Work Styles		
Work Values		
Work Needs		
urly \$25.25		
nual \$52,530		
Average (10-20%)		

Welding, soldering, and brazing machine setters, operators, and tenders

% Projected Employment	1.5%
Skills	
Abilities	Control Precision
Work Activities	
Work Context	Wear Common Protective or Safety Equipment
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Spend Time Making Repetitive Motions
	Face-to-Face Discussions
	Exposed to Contaminants
	Indoors, Not Environmentally Controlled
	Time Pressure
	Importance of Being Exact or Accurate
	Spend Time Bending or Twisting the Body
	Contact With Others
	Frequency of Decision Making
	Pace Determined by Speed of Equipment
	Exposed to Minor Burns, Cuts, Bites, or Stings
	Duration of Typical Work Week
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Cooperation
	Concern for Others
Work Values	
Work Needs	Moral Values
	Independence
Median Wages Hourly	\$14.63
Annuai	\$30,430
Projected Growth	Slower than average (0-9%)

Electricians

% Projected Employment	1.5%
Skills	
Abilities	Arm-Hand Steadiness
	Problem Sensitivity
	Finger Dexterity
	Near Vision
	Deductive Reasoning
	Extent Flexibility
	Manual Dexterity
	Trunk Strength
Work Activities	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Performing General Physical Activities
	Organizing, Planning, and Prioritizing Work
	Updating and Using Relevant Knowledge
	Getting Information
	Evaluating Information to Determine Compliance with Standards
	Handling and Moving Objects
Work Context	Freedom to Make Decisions
Work Context	Spend Time Standing
	Structured versus Unstructured Work
	Contact With Others
	Importance of Being Exact or Accurate
	Telephone
	Face-to-Face Discussions
	Frequency of Decision Making
	Indoors, Not Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Work With Work Group or Team
	Time Pressure
	Spend Time Walking and Running
	Coordinate or Lead Others
	Responsible for Others' Health and Safety
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Outdoors, Exposed to Weather
	Sounds, Noise Levels Are Distracting or Uncomfortable
Job Zone	3
Work Styles	Attention to Detail
	Dependability
	Initiative
Work Values	
Work Needs	Moral Values
	Ability Utilization
Madian Wagas Hourly	\$20.57
Median Wages Annual	
Projected Growth	Average (10-20%)
. 10,0000 0101111	7.10.14go (10 2070)

Industrial machinery mechanics

	industrial machinery mechanics
% Projected Employment	
Skills	Repairing
	Troubleshooting
	Equipment Maintenance
	Equipment Selection
	Installation
	Critical Thinking
	Operation Monitoring
	Reading Comprehension
Abilities	Reaction Time
, iomass	Control Precision
	Manual Dexterity
Work Activities	Repairing and Maintaining Mechanical Equipment
Work Activities	Inspecting Equipment, Structures, or Material
	Handling and Moving Objects
	Getting Information
	Performing General Physical Activities
	Controlling Machines and Processes
	Communicating with Supervisors, Peers, or Subordinates
	Identifying Objects, Actions, and Events
	Operating Vehicles, Mechanized Devices, or Equipment
	Making Decisions and Solving Problems
	Monitor Processes, Materials, or Surroundings
Work Context	Wear Common Protective or Safety Equipment
	Face-to-Face Discussions
	Exposed to Hazardous Equipment
	Duration of Typical Work Week
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Time Pressure
	Spend Time Standing
	Contact With Others
	Exposed to Hazardous Conditions
	Freedom to Make Decisions
	Frequency of Decision Making
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Indoors, Not Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
Job Zone	3
Work Styles	Attention to Detail
	Dependability
	Independence
	Integrity
	Initiative
	Analytical Thinking
	Persistence
	Cooperation
	Stress Tolerance
	Achievement/Effort
	Adaptability/Flexibility
	Concern for Others
	Innovation
	Self Control
Work Values	OGII OUTIIOI
Work Needs	Moral Values
	Moral Values
Median Wages Hourly	\$19.11
Annuai	\$39,740
Projected Growth	Slower than average (0-9%)

Engine and other machine assemblers

% Projected Employment	
Skills	Quality Control Analysis
	Operation Monitoring
	Installation
	Operation and Control
	Repairing
	Troubleshooting
	Equipment Maintenance
	Equipment Selection
	Technology Design
Abilities	Information Ordering
	Control Precision
	Manual Dexterity
	Visualization
	Written Comprehension
	Finger Dexterity
	Near Vision
	Problem Sensitivity
	Static Strength
Work Activities	Handling and Moving Objects
	Controlling Machines and Processes
	Performing General Physical Activities
	Inspecting Equipment, Structures, or Material
	Repairing and Maintaining Mechanical Equipment
Work Context	Exposed to Hazardous Equipment
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Spend Time Standing
Job Zone	3
Work Styles	
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$16.72
Annual	\$34,770
Projected Growth	Slower than average (0-9%)

Mechanical engineers

	Mechanical engineers
% Projected Employment	1.2%
Skills	Mathematics
	Complex Problem Solving
	Critical Thinking
	Reading Comprehension
	Science
	Active Listening
	Judgment and Decision Making
	Time Management
	Writing
	Speaking
	Operations Analysis
	Coordination
A I. :::::	Active Learning
Abilities	Oral Comprehension
	Problem Sensitivity
	Written Comprehension
	Deductive Reasoning
	Inductive Reasoning
	Information Ordering
	Near Vision
	Oral Expression
Work Activities	Making Decisions and Solving Problems
	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Indoors, Environmentally Controlled
	Face-to-Face Discussions
	Electronic Mail
	Freedom to Make Decisions
	Telephone
	Work With Work Group or Team
	Contact With Others
	Duration of Typical Work Week
	Importance of Being Exact or Accurate
	Letters and Memos
	Impact of Decisions on Co-workers or Company Results
	Structured versus Unstructured Work
	Frequency of Decision Making
	Time Pressure
	Coordinate or Lead Others
Job Zone	4
Work Styles	Attention to Detail
	Cooperation
	Dependability
	Leadership
	Achievement/Effort
	Adaptability/Flexibility
	Analytical Thinking
Work Values	Independence
	Achievement
Work Needs	Autonomy
WOIN IVOGUS	Ability Utilization
	Creativity
	Responsibility
	Achievement
	Social Status
	Activity
	Working Conditions
	Security
Median Wages Hourly	\$32.49
Annual	\$67,590
Projected Growth	Average (10-20%)

Electrical and electronic equipment assemblers

	Electrical and electronic equipment assemblers
% Projected Employment	
Skills	Quality Control Analysis
	Troubleshooting
	Equipment Selection
	Instructing
	Time Management
	Reading Comprehension
	Learning Strategies
	Monitoring
	Active Learning
Abilities	Near Vision
Work Activities	Identifying Objects, Actions, and Events
	Handling and Moving Objects
	Evaluating Information to Determine Compliance with Standards
	Inspecting Equipment, Structures, or Material
	Monitor Processes, Materials, or Surroundings
	Judging the Qualities of Things, Services, or People
	Performing General Physical Activities
	Controlling Machines and Processes
	Getting Information
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Wear Common Protective or Safety Equipment
	Importance of Being Exact or Accurate
	Contact With Others
	Work With Work Group or Team
	Face-to-Face Discussions
	Physical Proximity
	Time Pressure
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Cooperation
	Independence
	Self Control
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$12.08
- Annuai	\$25,130
Projected Growth	Much slower than average (negative growth)

Helpers--Production workers

% Projected Employment	1.1%
Skills	
Abilities	
Work Activities	Handling and Moving Objects
	Performing General Physical Activities
Work Context	Wear Common Protective or Safety Equipment
	Time Pressure
	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Exposed to Contaminants
	Duration of Typical Work Week
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Importance of Being Exact or Accurate
	Spend Time Bending or Twisting the Body
	Exposed to Minor Burns, Cuts, Bites, or Stings
Job Zone	1
Work Styles	Dependability
	Attention to Detail
Work Values	
Work Needs	Moral Values
Median Wages Hourly Annual	\$9.80
	\$20,390
Projected Growth	Slower than average (0-9%)

Millwrights

	gg
% Projected Employment	
Skills	Equipment Selection
	Repairing
	Installation
	Troubleshooting
	Mathematics
Abilities	Information Ordering
Abilities	
	Manual Dexterity
	Near Vision
	Visualization
Work Activities	Repairing and Maintaining Mechanical Equipment
	Operating Vehicles, Mechanized Devices, or Equipment
	Getting Information
	Inspecting Equipment, Structures, or Material
	Making Decisions and Solving Problems
	Updating and Using Relevant Knowledge
	Handling and Moving Objects
	Performing General Physical Activities
	Identifying Objects, Actions, and Events
	Monitor Processes, Materials, or Surroundings
Work Context	Wear Common Protective or Safety Equipment
	Face-to-Face Discussions
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Very Hot or Cold Temperatures
	Exposed to Hazardous Equipment
	Indoors, Not Environmentally Controlled
	Freedom to Make Decisions
	Frequency of Decision Making
	Structured versus Unstructured Work
	Exposed to Contaminants
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Physical Proximity
	Extremely Bright of Inadequate Lighting
	Cramped Work Space, Awkward Positions
	Telephone
	Spend Time Standing
	Time Pressure
	Exposed to Hazardous Conditions
	Duration of Typical Work Week
	Impact of Decisions on Co-workers or Company Results
	Importance of Being Exact or Accurate
	Responsible for Others' Health and Safety
	Exposed to High Places
	Spend Time Bending or Twisting the Body
	Work With Work Group or Team
	Contact With Others
	Exposed to Minor Burns, Cuts, Bites, or Stings
Job Zone	3
Work Styles	Attention to Detail
	Independence
	Dependability
	Analytical Thinking
	Concern for Others
	Innovation
	Cooperation
	Initiative
	Persistence
	Self Control
Morte Values	OGII OUTIIIOI
Work Values	M. IVI
Work Needs	Moral Values
Median Wages Hourly	\$21.53
Annual	\$44,780
Projected Growth	Slower than average (0-9%)

Assemblers and fabricators, all other

		·
% Projected Emp	oloyment	2.7%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone	9	
Work Style	es	
Work Valu	es	
Work Need	ds	
Median Wages	Hourly	\$12.62
wedian wages	Annual	\$26,250
Projected Growth		Slower than average (0-9%)

Industrial production managers

	industriai pro	duction managers	
% Projected Employment	0.8%		
Skills	Active Listening		
	Judgment and Decision Making		
	Critical Thinking		
	Reading Comprehension		
	Management of Personnel Reso	urces	
	Coordination		
	Monitoring		
	Time Management		
	Complex Problem Solving		
	Speaking		
	Instructing		
Abilities	Oral Comprehension		
Abilities	Oral Expression		
	Inductive Reasoning		
	Problem Sensitivity		
	Written Comprehension		
IA/. / A · C · C ·	Deductive Reasoning		
Work Activities	Getting Information	- Daniel of Culturalization	
	Communicating with Supervisors		
	Guiding, Directing, and Motivatin		
	Making Decisions and Solving P		
	Coordinating the Work and Activ		
	Organizing, Planning, and Priorit	tizing Work	
	Scheduling Work and Activities		
	Identifying Objects, Actions, and	Events	
Work Context	Face-to-Face Discussions		
	Telephone		
	Freedom to Make Decisions		
	Contact With Others		
	Structured versus Unstructured Work		
	Responsibility for Outcomes and Results		
	Work With Work Group or Team		
	Electronic Mail		
	Indoors, Environmentally Controlled		
	Coordinate or Lead Others		
	Duration of Typical Work Week		
	Frequency of Decision Making		
	Time Pressure		
	Impact of Decisions on Co-workers or Company Results		
	Importance of Being Exact or Accurate		
	Responsibility for Others' Health and Safety		
	Letters and Memos		
Job Zone	4	Otana Talanaa	
Work Styles	Leadership	Stress Tolerance	
	Attention to Detail	Independence	
	Adaptability/Flexibility	Achievement/Effort	
	Integrity	Persistence	
	Dependability	Analytical Thinking	
	Initiative	Concern for Others	
	Cooperation	Innovation	
	Self Control	Social Orientation	
Work Values	Independence		
Work Needs	Authority		
	Autonomy		
	Activity		
	Responsibility		
	Company Policies and Practices		
	Compensation		
	Creativity		
Madian Wassa Hourly	\$36.34		
Median Wages Annual	\$75,580		
Projected Growth	Slower than average (0-9%)		
. rojootoa Olowali	2.2 man aronago (0 0 /0)		

Packers and packagers, hand

% Projected Employment	0.7%		
Skills			
Abilities			
Work Activities	Handling and Moving Objects		
	Performing General Physical Activities		
Work Context	Spend Time Standing		
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
	Indoors, Environmentally Controlled		
	Contact With Others		
	Face-to-Face Discussions		
	Spend Time Making Repetitive Motions		
	Physical Proximity		
Job Zone	1		
Work Styles	Attention to Detail		
	Cooperation		
	Dependability		
Work Values			
Work Needs	Moral Values		
Median Wages Hourly	\$8.36		
Annual	\$17,390		
Projected Growth	Average (10-20%)		

Production, planning, and expediting clerks

% Projected Employment	n 80%.		
% Projected Employment Skills	Active Listening		
ONIIIS	Reading Comprehension		
	Coordination		
Abilities	Speaking Written Comprehension		
Work Activities	Written Comprehension		
Work Activities	Getting Information Communicating with Supervisors, Rears, or Subardinates		
	Communicating with Supervisors, Peers, or Subordinates		
	Interacting With Computers		
	Organizing, Planning, and Prioritizing Work		
	Identifying Objects, Actions, and Events		
	Monitor Processes, Materials, or Surroundings		
	Scheduling Work and Activities		
Mark Contact	Making Decisions and Solving Problems		
Work Context	Face-to-Face Discussions		
	Telephone		
	Indoors, Environmentally Controlled		
	Time Pressure		
	Electronic Mail		
	Frequency of Decision Making		
	Freedom to Make Decisions		
	Importance of Being Exact or Accurate		
	Work With Work Group or Team		
	Contact With Others		
	Impact of Decisions on Co-workers or Company Results		
	Duration of Typical Work Week		
	Structured versus Unstructured Work		
	Importance of Repeating Same Tasks		
	Responsibility for Outcomes and Results		
	Deal With External Customers		
	Exposed to Contaminants		
Job Zone	2		
Work Styles	Attention to Detail		
	Dependability		
	Cooperation		
	Stress Tolerance		
	Independence		
	Initiative		
	Persistence		
	Adaptability/Flexibility		
	Self Control		
	Achievement/Effort		
	Integrity		
	Analytical Thinking		
Work Values			
Work Needs			
Median Wages Hourly	\$18.07		
- Annuai	\$37,590		
Projected Growth	Slower than average (0-9%)		

Sewing machine operators

% Projected Employment	0.6%	
Skills		
Abilities		
Work Activities		
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Indoors, Environmentally Controlled Time Pressure Importance of Being Exact or Accurate Spend Time Making Repetitive Motions Spend Time Sitting Pace Determined by Speed of Equipment	
	Physical Proximity	
Job Zone	1	
Work Styles	Attention to Detail Dependability	
Work Values		
Work Needs	Moral Values Activity Independence	
Median Wages Hourly	\$8.82	
Annual	\$18,340	
Projected Growth	Much slower than average (negative growth)	

General and operations managers

% Projected Employment	Ogeneral and operations managers
Skills	Active Listening
Skills	Management of Personnel Resources
	Time Management
	Judgment and Decision Making Manitoring
	Monitoring Reading Comprehension
	Reading Comprehension
	Speaking Management of Financial Resources
	Management of Financial Resources Active Listening
	Persuasion Persuasion
Abilities	Oral Expression
Abilities	Oral Comprehension
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Written Comprehension
	Deductive Reasoning
	Inductive Reasoning
Work Activities	Getting Information
Work Activities	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
Work Cornext	Duration of Typical Work Week
	Work With Work Group or Team
	Face-to-Face Discussions
	Contact With Others
	Frequency of Decision Making
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Structured versus Unstructured Work
	Coordinate or Lead Others
	Time Pressure
	Electronic Mail
	Responsible for Others' Health and Safety
	Deal With Unpleasant of Angry People
	Letters and Memos
Job Zone	4
Work Styles	Dependability
WOIN SIGIES	Leadership
	Integrity
	Attention to Detail
	Initiative
	Self Control
	Cooperation
	Concern for Others
	Analytical Thinking
	Independence
	Stress Tolerance
	Social Orientation
	Adaptability/Flexibility
	Innovation
	Persistence
	Achievement/Effort
Work Values	AMIIGACILICIIA FILORI
Work Needs	
Hourly	\$30.17
Median Wages Hourly Annual	\$39.17 \$81,480
Projected Growth	
Frojecied Growin	Average (10-20%)

Purchasing agents, except wholesale, retail, and farm products

	chasing agents, except wholesale, retail, and farm products
% Projected Employment	
Skills	Speaking
	Active Listening
	Critical Thinking
	Judgment and Decision Making
Abilities	Oral Expression
	Oral Comprehension
	Inductive Reasoning
	Deductive Reasoning
	Problem Sensitivity
	Speech Clarity
	Written Comprehension
Work Activities	Communicating with Supervisors, Peers, or Subordinates
	Interacting With Computers
	Getting Information
	Communicating with Persons Outside Organization
	Organizing, Planning, and Prioritizing Work
	Establishing and Maintaining Interpersonal Relationships
	Making Decisions and Solving Problems
	Processing Information
	Monitor Processes, Materials, or Surroundings
	Performing Administrative Activities
Work Context	Telephone
Trom Comen	Importance of Being Exact or Accurate
	Structured versus Unstructured Work
	Contact With Others
	Electronic Mail
	Time Pressure
	Indoors, Environmentally Controlled
	Freedom to Make Decisions
	Work With Work Group or Team
	Face-to-Face Discussions
	Spend Time Sitting
	Frequency of Decision Making
Job Zone	3
Work Styles	Integrity
Trom Giyloo	Attention to Detail
	Dependability
	Cooperation
	Self Control
	Adaptability/Flexibility
	Total and the second of the se
	Analytical Thinking
	Concern for Others
	Independence
	Stress Tolerance
	Achievement/Effort
Work Values	VOIIGAGIIIGIIAFIIOIT
Work Needs	
Hourly	\$23.57
Median Wages Annual	\$49,030
Projected Growth	Slower than average (0-9%)
i rojecied Growin	Giowor than average (0-370)

Engineering managers

0/ 0-1-1-1-1-1-1		ing managers
% Projected Employment		
Skills	Reading Comprehension	Active Learning
	Mathematics	Coordination
	Active Listening	Operations Analysis
	Critical Thinking	Judgment and Decision Making
	Complex Problem Solving	Time Management
Abilities	Oral Comprehension	Information Ordering
	Written Comprehension	Speech Clarity
	Inductive Reasoning	Near Vision
	Oral Expression	Problem Sensitivity
	Speech Recognition	Written Expression
	Deductive Reasoning	Whiteh Expression
Work Activities	Communicating with Supervisors	Poore or Subordinatos
Work Activities	Making Decisions and Solving Pr	
		ODIEITIS
	Getting Information	staida Oussanissatian
	Communicating with Persons Ou	
	Updating and Using Relevant Kn	
	Coordinating the Work and Activ	
	Establishing and Maintaining Inte	erpersonal Relationships
Work Context	Duration of Typical Work Week	
	Telephone	
	Face-to-Face Discussions	
	Electronic Mail	
	Freedom to Make Decisions	
	Structured versus Unstructured \	Vork
	Frequency of Decision Making	
	Indoors, Environmentally Control	lled
	Contact With Others	
	Importance of Being Exact or Ac	curate
	Impact of Decisions on Co-worke	
	Indoors, Not Environmentally Co	
	Coordinate or Lead Others	niiolied
	Letters and Memos	
	Responsible for Others' Health and Safety	
	Fime Pressure	
	Work With Work Group or Team	
Job Zone	5	
Work Styles	Analytical Thinking	
	Dependability	
	Attention to Detail	
	Integrity	
	Achievement/Effort	
	Stress Tolerance	
	Self Control	
	Persistence	
	Adaptability/Flexibility	
	Cooperation	
Work Values		
Work values	Independence	
Maria Maria da	Achievement	
Work Needs Autonomy		
	Compensation	
	Authority	
	Ability Utilization	
	Company Policies and Practices	
	Working Conditions	
	Achievement Activity Responsibility	
	Security	
Madian Warran Hourly	\$48.44	
Median Wages Annual	\$100,760	
Projected Growth	Average (10-20%)	
r rojected Growth	, Jiago (10 20 /0)	

Plumbers, pipefitters, and steamfitters

r		tters, and steamfitters		
% Projected Employment	0.6%			
Skills	Installation	Judgment and Decision Making	Troubleshooting	
	Critical Thinking	Active Listening	Complex Problem Solving	
	Instructing	Mathematics	Reading Comprehension	
	Active Learning	Repairing	Time Management	
	Equipment Selection	-	_	
Abilities	Information Ordering	Manual Dexterity		
	Near Vision	Problem Sensitivity		
	Problem Sensitivity	Static Strength		
	Arm-Hand Steadiness	3.		
Work Activities	Getting Information			
	Inspecting Equipment, Structure	s, or Material		
	Making Decisions and Solving P			
	Communicating with Supervisors			
	Analyzing Data or Information			
	Processing Information			
	Repairing and Maintaining Mech	anical Equipment		
	Organizing, Planning, and Priori			
	Performing General Physical Ac	_		
	Scheduling Work and Activities			
	Handling and Moving Objects			
	Updating and Using Relevant Kr	nowledae		
	Interacting With Computers	G -		
	Judging the Qualities of Things,	Services, or People		
	Developing Objectives and Strat			
	Interpreting the Meaning of Infor			
	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment			
	Identifying Objects, Actions, and		1-1	
Work Context	Face-to-Face Discussions			
	Duration of Typical Work Week			
	Freedom to Make Decisions			
	Contact With Others			
	Frequency of Decision Making			
	Impact of Decisions on Co-workers or Company Results			
	Responsible for Others' Health and Safety			
	Work With Work Group or Team			
	Structured versus Unstructured	Work		
	Telephone			
	Wear Common Protective or Safety Equipment			
	Responsibility for Outcomes and Results			
	Level of Competition			
	Outdoors, Exposed to Weather			
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls			
	Exposed to Minor Burns, Cuts, Bites, or Stings			
	Importance of Being Exact or Accurate			
	Indoors, Not Environmentally Controlled			
	Telephone			
	Exposed to Hazardous Equipment			
	Cramped Work Space, Awkward Positions			
	Exposed to Contaminants			
	In an Enclosed Vehicle or Equipment			
	Coordinate or Lead Others			
	Very Hot or Cold Temperatures	o		
1.1.7.	Spend Time Kneeling, Crouching	g, Stooping, or Crawling		
Job Zone	3	Ctropo Tolorere	Initiativa	
Work Styles	Integrity	Stress Tolerance	Initiative	
	Attention to Detail	Analytical Thinking	Innovation	
	Dependability	Leadership	Adaptability/Flexibility	
	Self Control	Persistence	Social Orientation	
	Cooperation	Achievement/Effort	Concern for Others	
14/owle 1/-1:	Independence			
Work Values	Moral Values			
Work Needs	Moral Values			
Median Wages Hourly	\$20.27			
Annual Projected Growth		Occup 29		
	average LIU-ZU701	700up <u>4</u> 0		

Janitors and cleaners, except maids and housekeeping cleaners

% Projected Employment	0.6%	
Skills	Reading Comprehension	
Abilities		
Work Activities		
Work Context	Spend Time Standing	
	Exposed to Contaminants	
	Face-to-Face Discussions	
	Indoors, Environmentally Controlled	
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	
	Contact With Others	
	Spend Time Walking and Running	
	Spend Time Bending or Twisting the Body	
	Wear Common Protective or Safety Equipment	
Job Zone	1	
Work Styles	Dependability	
	Self Control	
	Cooperation	
	Attention to Detail	
	Concern for Others	
	Integrity	
	Independence	
Work Values		
Work Needs	Moral Values	
Median Wages Hourly	\$9.32	
Annual	\$19,390	
Projected Growth	Average (10-20%)	

Computer software engineers, applications

% Projected Employment	13.6%		
Skills	Programming	Operations Analysis	
Onlis	Critical Thinking	Systems Analysis	
	Complex Problem Solving	Quality Control Analysis	
	Troubleshooting	Active Listening	
	Active Learning	Speaking Time Management	
	Technology Design	Time Management	
	Judgment and Decision Making	Coordination	
Abilities	Reading Comprehension		
Abilities	Oral Comprehension Deductive Reasoning		
	Near Vision		
	Inductive Reasoning		
	Problem Sensitivity		
	Speech Clarity		
Work Activities	Written Comprehension Interacting With Computers		
WORK ACTIVITIES		noveled a c	
	Updating and Using Relevant Kr	lowledge	
	Getting Information	vahlama	
	Making Decisions and Solving P		
	Communicating with Supervisors	s, Peers, or Subordinates	
	Thinking Creatively	Finanta	
	Identifying Objects, Actions, and	Events	
	Analyzing Data or Information		
Mark Cartard	Processing Information		
Work Context	Face-to-Face Discussions		
	Electronic Mail		
	Spend Time Sitting		
	Work With Work Group or Team		
	Indoors, Environmentally Controlled		
	Freedom to Make Decisions		
	Importance of Being Exact or Ac	curate	
1.1.7	Coordinate or Lead Others		
Job Zone	4	lana a satis a	
Work Styles	Analytical Thinking	Innovation	
	Attention to Detail	Persistence	
	Cooperation	Adaptability/Flexibility	
	Dependability	Initiative	
Mork Values	Achievement/Effort		
Work Values	Achievement		
Morte Nondo	Independence	Autonomy	
Work Needs	Ability Utilization	Actionomy	
	Working Conditions	Achievement	
	Responsibility	Activity	
	Creativity	Security	
11. 1	Social Status		
Median Wages Hourly	\$37.06		
- Annuai	\$77,090		
Projected Growth	Much faster than average (36+%	o)	

Computer Systems Design Computer software engineers, systems software

% Projected Employment		rigineers, systems software		
% Projected Employment Skills		Deading Comprehension		
SKIIIS	Complex Problem Solving	Reading Comprehension		
	Technology Design	Systems Analysis		
	Troubleshooting	Mathematics		
	Critical Thinking	Operations Analysis		
	Active Learning	Active Listening		
	Programming			
Abilities	Deductive Reasoning			
	Inductive Reasoning			
Work Activities	Interacting With Computers			
	Making Decisions and Solving P	roblems		
	Analyzing Data or Information			
	Updating and Using Relevant Kr	nowledge		
	Organizing, Planning, and Priori			
	Communicating with Supervisors			
		s, reers, or Subordinates		
	Getting Information	sia a Canandian an with Chandrada		
	Evaluating Information to Determ			
	Documenting/Recording Information			
	Identifying Objects, Actions, and	Events		
	Processing Information			
	Interpreting the Meaning of Infor	mation for Others		
	Thinking Creatively			
	Scheduling Work and Activities			
	Establishing and Maintaining Int	erpersonal Relationships		
	Provide Consultation and Advice	e to Others		
	Developing Objectives and Strategies			
	Monitor Processes, Materials, or Surroundings			
Work Context	Face-to-Face Discussions	Carroanango		
Work Comext				
		Electronic Mail		
	Importance of Being Exact or Accurate			
	Work With Work Group or Team			
	Indoors, Environmentally Controlled			
	Spend Time Sitting			
	Structured versus Unstructured	Work		
	Freedom to Make Decisions			
	Telephone			
	Contact With Others			
	Importance of Repeating Same Tasks			
	Spend Time Making Repetitive N			
	Time Pressure			
	Duration of Typical Work Week			
Job Zone	4			
Work Styles	Analytical Thinking	Adaptability/Flexibility		
Work Olyles	Attention to Detail	Dependability		
	Cooperation	Persistence		
	•			
	Initiative	Stress Tolerance		
	Achievement/Effort	Leadership		
	Integrity	Independence		
	Innovation			
Work Values	Achievement			
	Independence			
Work Needs	Ability Utilization	Autonomy		
Ī	Working Conditions	Achievement		
	•	Activity		
	Responsibility			
	Responsibility Creativity	·		
	Creativity	Security		
Hourty	Creativity Social Status	·		
Median Wages Hourly	Creativity Social Status \$39.48	·		
Median Wages Hourly Annual Projected Growth	Creativity Social Status \$39.48	Security		

Computer Systems Design Computer systems analysts

% Projected Employment	8.1%	•
Skills	Active Learning	Time Management
	Reading Comprehension	Quality Control Analysis
	Complex Problem Solving	Systems Analysis
	Critical Thinking	Coordination
	Active Listening	Technology Design
	Troubleshooting	Judgment and Decision Making
	Service Orientation	Learning Strategies
	Monitoring	Equipment Selection
Abilities	Oral Comprehension	Equipment Colocitori
7.10.71.00	Problem Sensitivity	
	Inductive Reasoning	
	Deductive Reasoning	
Work Activities	Interacting With Computers	
	Making Decisions and Solving P	roblems
	Processing Information	
	Getting Information	
	Updating and Using Relevant Kr	nowledge
	Identifying Objects, Actions, and	
	Analyzing Data or Information	
	Communicating with Supervisors	s. Peers, or Subordinates
	Thinking Creatively	,, , , , , , , , , , , , , , , , , , , ,
	Interpreting the Meaning of Infor	mation for Others
Work Context	Electronic Mail	mater for exterior
	Freedom to Make Decisions	
	Structured versus Unstructured	Work
	Telephone	
	Spend Time Sitting	
	Face-to-Face Discussions	
	Importance of Being Exact or Accurate Work With Work Group or Team	
	Indoors, Environmentally Contro	
	Impact of Decisions on Co-workers or Company Results	
	Contact With Others	,
	Duration of Typical Work Week	
Job Zone	4	
Work Styles	Adaptability/Flexibility	Dependability
	Attention to Detail	Initiative
	Analytical Thinking	Integrity
	Persistence	- -
Work Values	Independence	
	Achievement	
Work Needs	Company Policies and Practices	Responsibility
	Ability Utilization	Creativity
	Security	Compensation
	Autonomy	•
Modian Wagon Hourly	\$32.84	
Median Wages Annual	\$68,300	
Projected Growth	Faster than average (21-35%)	
•	· · · · · · · · · · · · · · · · · · ·	

Computer Systems Design Computer support specialists

Skills Troubleshooting Reading Comprehension Speaking Critical Thinking Learning Strategies Active Listening Active Learning Problem Sensitivity Oral Expression Speech Recognition Written Comprehension Information Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Near Vision	Of Desired LEvels		apport opoolanote
Reading Comprehension Speaking Critical Thinking Learning Strategies Active Listening Active Learning Active Learning Abilities Inductive Reasoning Problem Sensitivity Oral Expression Speech Recognition Written Comprehension Information Ordering Oral Comprehension Speech Recognition Written Comprehension Speech Clarity Deductive Reasoning Near Vision Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Persons Outside Organization Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpresonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Innovation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Houry \$19.52 Annual \$40.610			
Critical Thinking Learning Strategies Active Listening Active Learning Abilities Inductive Reasoning Problem Sensitivity Oral Expression Speech Recognition Written Comprehension Information Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Information Ordering Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured Versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Indepring Achievement/Effort Persistence Social Orientation Work Needs Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$40,610	Skills		
Abilities Inductive Reasoning Problem Sensitivity Oral Expression Speech Recognition Information Ordering Oral Comprehension Speech Recognition Information Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Houry \$19.52 Annual \$40,610			
Abilities Inductive Reasoning Oral Expression Speech Recognition Written Comprehension Information Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Needs Autnomy Working Conditions Security Company Policies and Practices Median Wages Hourly 19.52 Annual \$40,610			
Oral Expression Written Comprehension Information Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Needs Autonomy Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610			
Written Comprehension Ordering Oral Comprehension Speech Clarity Deductive Reasoning Near Vision Work Activities Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Audony Working Conditions Security Company Policies and Practices Median Wages Annual \$40,610	Abilities		
Oral Comprehension Speech Clarity Near Vision			
Deductive Reasoning Near Vision			
Interacting With Computers Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information			
Getting Information Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Annual \$40,610			Near Vision
Updating and Using Relevant Knowledge Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Flourty \$19.52 Annual \$40,610	Work Activities		
Making Decisions and Solving Problems Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wage #Median Wage Amual \$40,610			
Communicating with Persons Outside Organization Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Integrity Achievement/Effort Persistence Social Orientation Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages #Median Wages Anual #40,610			
Communicating with Supervisors, Peers, or Subordinates Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourty \$19.52 Annual \$40,610			
Establishing and Maintaining Interpersonal Relationships Identifying Objects, Actions, and Events Interpreting the Meaning of Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Independence Leadership Integrity Achievement/Effort Persistence Work Values Work Needs Median Wages Median Wages Flourly \$19.52 Annual \$40,610			
Identifying Objects, Actions, and Events Interpreting the Meaning of Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Median Wages Median Wages Hourly \$19.52 Annual Annual Self Control Flourity Autonomy Flourity Achievement (Effort Persistence Social Orientation Median Wages Hourly \$19.52 Annual Annual \$40,610			
Interpreting the Meaning of Information for Others Documenting/Recording Information Work Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610		Establishing and Maintaining Into	erpersonal Relationships
Documenting/Recording Information		Identifying Objects, Actions, and	Events
Mork Context Face-to-Face Discussions Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work		Interpreting the Meaning of Infor	mation for Others
Indoors, Environmentally Controlled Telephone Contact With Others Electronic Mail Structured versus Unstructured Work 3 Work Styles Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly 19.52 Annual 40,610			ation
Telephone Contact With Others Electronic Mail Structured versus Unstructured Work 3 Work Styles	Work Context	Face-to-Face Discussions	
Contact With Others Electronic Mail Structured versus Unstructured Work 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610		Indoors, Environmentally Contro	lled
Electronic Mail Structured versus Unstructured Work Structured versus Unstructured Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation		Telephone	
Structured versus Unstructured Work Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Social Orientation Work Values Autonomy Working Conditions Security Company Policies and Practices Phourly \$19.52 Annual \$40,610 \$40,610		Contact With Others	
Job Zone 3 Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Autonomy Working Conditions Security Company Policies and Practices Tompany Policies and Practices Median Wages Hourly Hourly Annual Annual \$40,610		Electronic Mail	
Work Styles Attention to Detail Initiative Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Autonomy Working Conditions Security Company Policies and Practices Annual Median Wages Hourly \$19.52 Annual \$40,610		Structured versus Unstructured	Work
Analytical Thinking Concern for Others Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly		3	
Dependability Stress Tolerance Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly 40,610 Self Control Innovation Self Control Indopendence Leadership Achievement/Effort Social Orientation Work Values Work Values ### Achievement/Effort ### Achievemen	Work Styles	Attention to Detail	Initiative
Adaptability/Flexibility Innovation Cooperation Self Control Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly 40,610		Analytical Thinking	Concern for Others
Work Values Autonomy Vorking Conditions Security Working Company Policies and Practices Hourly 440,610		Dependability	Stress Tolerance
Independence Leadership Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610		Adaptability/Flexibility	Innovation
Integrity Achievement/Effort Persistence Social Orientation Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610		Cooperation	Self Control
Work Values Autonomy Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610		Independence	Leadership
Work Values Autonomy Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610			·
Work Values Work Needs Autonomy Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610			Social Orientation
Working Conditions Security Company Policies and Practices Median Wages Hourly \$19.52 Annual \$40,610	Work Values		
Median Wages Hourly 40,610 Security Company Policies and Practices 1 Hourly 40,610	Work Needs	Autonomy	
Median Wages Hourly \$19.52 Annual \$40,610		Working Conditions	
Median Wages Hourly \$19.52 Annual \$40,610		Security	
Median Wages Hourly \$19.52 Annual \$40,610		Company Policies and Practices	
Annual \$40,610	Madian Wassa Hourly		
Projected Growth Faster than average (21-35%)	Annual		
	Projected Growth	Faster than average (21-35%)	

Computer Systems Design Network systems and data communications analysts

		ata communications analysis
% Projected Employment	3.2%	
Skills	Equipment Selection	Judgment and Decision Making
	Troubleshooting	Technology Design
	Complex Problem Solving	Coordination
	Active Listening	Systems Evaluation
	Active Learning	Operations Analysis
	Critical Thinking	Equipment Maintenance
	Installation	Systems Analysis
	Reading Comprehension	Instructing
Abilities	Near Vision	g
7	Written Comprehension	
	Deductive Reasoning	
	Problem Sensitivity	
Work Activities	Interacting With Computers	
VVOIN ACTIVITIES	Communicating with Supervisors	Pears or Subordinates
	Getting Information	s, reers, or Subordinates
	Thinking Creatively	
		staide Organization
	Communicating with Persons Ou	<u> </u>
	Establishing and Maintaining Inte	·
	Identifying Objects, Actions, and	
	Organizing, Planning, and Priorit	
	Making Decisions and Solving P	
	Updating and Using Relevant Kr	
	Monitor Processes, Materials, or	
	Judging the Qualities of Things,	
	Evaluating Information to Determine Compliance with Standards	
	Analyzing Data or Information	
	Interpreting the Meaning of Infor	mation for Others
	Processing Information	
	Documenting/Recording Informa	tion
Work Context	Telephone	
	Electronic Mail	
	Indoors, Environmentally Controlled	
	Face-to-Face Discussions	
	Importance of Being Exact or Accurate	
	Structured versus Unstructured Work	
	Duration of Typical Work Week	
	Freedom to Make Decisions	
	Work With Work Group or Team	
	Contact With Others	
	Spend Time Sitting	
Job Zone	3	
Work Styles	Attention to Detail	Persistence
1.5 2.3,100	Dependability	Achievement/Effort
	Analytical Thinking	Self Control
	Stress Tolerance	Cooperation
	Initiative	Independence
	Adaptability/Flexibility	Integrity
Work Values	Adaptability/Flexibility Achievement	integrity
		Autonomy
Work Needs	Ability Utilization	Autonomy Working Conditions
	Compensation	Working Conditions
., .	Company Policies and Practices	Security
Median Wages Hourly	\$29.69	
- Annuai	\$61,750	
Projected Growth	Much faster than average (36+%)	

Computer Systems Design Network and computer systems administrators

% Projected Employment	3.9%	•	
Skills	Troubleshooting	Complex Problem Solving	
	Reading Comprehension	Critical Thinking	
	Active Listening	Service Orientation	
	Active Learning		
Abilities	Near Vision	Written Comprehension	
	Problem Sensitivity	Information Ordering	
	Inductive Reasoning	Deductive Reasoning	
	Oral Comprehension	Finger Dexterity	
	Oral Expression		
Work Activities	Interacting With Computers		
	Updating and Using Relevant Kr	nowledge	
	Making Decisions and Solving P	roblems	
	Getting Information		
	Communicating with Supervisors	s, Peers, or Subordinates	
	Processing Information		
	Identifying Objects, Actions, and	Events	
Work Context	Electronic Mail		
	Telephone		
	Face-to-Face Discussions		
	Indoors, Environmentally Controlled		
	Contact With Others		
	Structured versus Unstructured Work		
	Importance of Being Exact or Ac	curate	
	Freedom to Make Decisions Work With Work Group or Team Duration of Typical Work Week		
	Spend Time Sitting		
	Time Pressure		
Job Zone	4		
Work Styles	Attention to Detail	Integrity	
	Dependability	Achievement/Effort	
	Analytical Thinking	Independence	
	Cooperation	Persistence	
	Initiative	Innovation	
	Stress Tolerance	Self Control	
	Adaptability/Flexibility	Leadership	
Work Values			
Work Needs	000.04		
Median Wages Hourly	\$28.81		
Annuai	\$59,930		
Projected Growth	Much faster than average (36+%	o)	

Computer Systems Design Computer and information systems managers

Of Duning start Francisco	•	mation systems managers
% Projected Employment		
Skills	Reading Comprehension	Active Learning
	Critical Thinking	Negotiation
	Active Listening	Management of Financial Resources
	Judgment and Decision Making	
Abilities	Problem Sensitivity	Deductive Reasoning
	Oral Expression	Near Vision
	Oral Comprehension	Speech Clarity
	Written Comprehension	Inductive Reasoning
Work Activities	Getting Information	
	Interacting With Computers	
	Identifying Objects, Actions, and	Events
	Interpreting the Meaning of Information	mation for Others
	Scheduling Work and Activities	
	Making Decisions and Solving P	roblems
	Establishing and Maintaining Inte	erpersonal Relationships
	Thinking Creatively	
Work Context	Telephone	
	Electronic Mail	
	Face-to-Face Discussions	
	Work With Work Group or Team	
	Contact With Others	
	Freedom to Make Decisions	
	Spend Time Sitting	
	Structured versus Unstructured \	Work
	Duration of Typical Work Week	
	Indoors, Environmentally Contro	lled
	Importance of Being Exact or Accurate Letters and Memos	
	Coordinate or Lead Others	
Job Zone	5	
Work Styles	Dependability	Leadership
	Self Control	Cooperation
	Integrity	Attention to Detail
	Adaptability/Flexibility	Initiative
	Persistence	Stress Tolerance
	Independence	Achievement/Effort
	Analytical Thinking	Innovation
Work Values	Independence	IIIIOVALIOII
Work Needs	Authority	Security
WOIN IVEEUS	Working Conditions	Autonomy
	Ability Utilization	Compensation
		Compensation
Harrie	Responsibility \$46.41	
Median Wages Hourly		
Annual Projected Crowth		
Projected Growth	Faster than average (21-35%)	

Customer service representatives

% Projected Employment	3.1%	-	
Skills	Active Listening	Time Management	
	Reading Comprehension	Service Orientation	
	Monitoring	Active Learning	
	Speaking		
Abilities	Oral Comprehension	Speech Recognition	
	Oral Expression	Inductive Reasoning	
	Deductive Reasoning	Near Vision	
	Problem Sensitivity	Written Comprehension	
	Speech Clarity		
Work Activities	Interacting With Computers		
	Getting Information		
	Making Decisions and Solving P		
	Documenting/Recording Information		
	Communicating with Supervisors		
	Monitor Processes, Materials, or	=	
	Identifying Objects, Actions, and	Events	
	Processing Information		
Work Context	Contact With Others		
	Telephone		
	Face-to-Face Discussions		
	Indoors, Environmentally Controlled		
	Spend Time Sitting		
	Time Pressure		
	Work With Work Group or Team		
	Electronic Mail Freedom to Make Decisions		
	Deal With External Customers Frequency of Decision Making		
		o Handle, Control, or Feel Objects, Tools, or Controls	
	Importance of Being Exact or Accurate Importance of Repeating Same Tasks		
Job Zone	2	idono	
Work Styles	Cooperation	Independence	
Trem eighed	Dependability	Persistence	
	Attention to Detail	Integrity	
	Self Control	Social Orientation	
	Stress Tolerance	Analytical Thinking	
	Adaptability/Flexibility	Achievement/Effort	
	Initiative	Leadership	
	Concern for Others		
Work Values			
Work Needs			
Madian Wagas Hourly	\$13.22		
Median Wages Annual	\$27,490		
Projected Growth	Faster than average (21-35%)		

Computer programmers

% Projected Employment		
Skills	Programming	Learning Strategies
	Critical Thinking	Operations Analysis
	Complex Problem Solving	Active Listening
	Active Learning	Troubleshooting
	Reading Comprehension	Technology Design
Abilities	Information Ordering	Written Expression
	Deductive Reasoning	Written Comprehension
	Near Vision	Oral Expression
	Oral Comprehension	Inductive Reasoning
Work Activities	Interacting With Computers	
	Organizing, Planning, and Priorit	
	Making Decisions and Solving P	roblems
	Getting Information	
	Updating and Using Relevant Kr	nowledge
	Communicating with Supervisors	s, Peers, or Subordinates
	Analyzing Data or Information	
Work Context	Electronic Mail	
	Face-to-Face Discussions	
	Telephone	
	Importance of Being Exact or Ac	curate
	Work With Work Group or Team	
	Indoors, Environmentally Contro	lled
	Spend Time Sitting	
	Freedom to Make Decisions	
	Contact With Others	
	Structured versus Unstructured Work	
	Time Pressure	
Job Zone	4	
Work Styles	Analytical Thinking	Integrity
_	Attention to Detail	Achievement/Effort
	Dependability	Adaptability/Flexibility
	Initiative	Persistence
	Independence	
Work Values	Achievement	
	Independence	
Work Needs	Ability Utilization	Company Policies and Practices
	Creativity	Compensation
	Security	Achievement
	Autonomy	Working Conditions
Marilian Maria Hourly	\$30.49	-
Median Wages Annual	\$63,420	
Projected Growth	Slower than average (0-9%)	
· · · · · · · · · · · · · · · · · · ·	<u> </u>	

Computer Systems Design General and operations managers

		pperations managers
% Projected Employment		
Skills	Active Listening	
	Management of Personnel Reso	purces
	Time Management	
	Judgment and Decision Making	
	Monitoring	
	Reading Comprehension	
	Speaking	
	Management of Financial Resources	
	Active Listening	
	Persuasion	
Abilities	Oral Expression	Speech Recognition
	Oral Comprehension	Written Comprehension
	Problem Sensitivity	Deductive Reasoning
	Speech Clarity	Inductive Reasoning
Work Activities	Getting Information	
	Communicating with Supervisors	s, Peers, or Subordinates
Work Context	Telephone	
	Duration of Typical Work Week	
	Work With Work Group or Team	
	Face-to-Face Discussions	
	Contact With Others	
	Frequency of Decision Making	
	Freedom to Make Decisions	
	Importance of Being Exact or Ac	ccurate
	Indoors, Environmentally Controlled	
	Impact of Decisions on Co-workers or Company Results	
	Responsibility for Outcomes and	· ·
	Deal With External Customers	
	Structured versus Unstructured Work	
	Coordinate or Lead Others	
	Time Pressure	
	Electronic Mail	
	Responsible for Others' Health and Safety	
	Deal With Unpleasant of Angry F	
	Letters and Memos	σορισ
Job Zone	4	
Work Styles	Dependability	Analytical Thinking
WOIN OLYICO	Leadership	Independence
	Integrity	Stress Tolerance
	Attention to Detail	Social Orientation
	Initiative	Adaptability/Flexibility
	Self Control	Innovation
	Cooperation	Persistence
	Cooperation Concern for Others	Achievement/Effort
Work Values	Concern for Others	VOHICACHIGHI/EHOLI
Work Needs		
Hough	\$30.17	
Median Wages Hourly	\$39.17 \$81,480	
Annual Projected Growth		
Projected Growth	Average (10-20%)	

Computer Systems Design Management analysts

O/ Drainated France	0.40/	<u> </u>	
% Projected Employment			
Skills	Critical Thinking	Quality Control Analysis	Operations Analysis
	Judgment and Decision Making	Reading Comprehension	Service Orientation
	Coordination	Operation and Control	Systems Evaluation
	Time Management	Learning Strategies	Installation
	Active Listening	Writing	Systems Analysis
	Monitoring	Troubleshooting	Active Learning
	Instructing	Mathematics	· · · · · · · · · · · · · · · · · · ·
Abilities	Oral Comprehension	Written Expression	
Abilities	Oral Expression	Deductive Reasoning	
		· ·	
	Written Comprehension	Problem Sensitivity	
14/ / 4 / 1/	Inductive Reasoning		
Work Activities	Getting Information		
	Communicating with Supervisors		
	Establishing and Maintaining Inte	erpersonal Relationships	
	Analyzing Data or Information		
	Organizing, Planning, and Priorit	izing Work	
	Evaluating Information to Determ		
	Processing Information		
	Documenting/Recording Informa	tion	
	Updating and Using Relevant Kr		
	Making Decisions and Solving P		
	Communicating with Persons Ou		
	Developing Objectives and Strat		
	Resolving Conflicts and Negotian	ing with Others	
	Interpreting the Meaning of Infor	mation for Others	
	Interacting With Computers		
	Judging the Qualities of Things,	Services, or People	
	Monitor Processes, Materials, or		
		acteristics of Products, Events, or I	nformation
Work Context	Telephone		
Work Cornox	Electronic Mail		
	Face-to-Face Discussions	u - 1	
	Indoors, Environmentally Contro	llea	
	Contact With Others		
	Structured versus Unstructured \	Nork	
	Freedom to Make Decisions		
	Work With Work Group or Team		
	Impact of Decisions on Co-worke	ers or Company Results	
	Duration of Typical Work Week	' '	
	Spend Time Sitting		
	Letters and Memos		
loh Zono	Coordinate or Lead Others		
Job Zone	4	A color of This is a	
Work Styles	Dependability	Analytical Thinking	
	Adaptability/Flexibility	Initiative	
	Cooperation	Attention to Detail	
	Stress Tolerance	Achievement/Effort	
	Integrity	Self Control	
	Concern for Others	Independence	
	Leadership	Social Orientation	
	Persistence	Innovation	
Work Values	Achievement		
Tron values	Independence		
Work Needs		Compensation	
WOIK NEEDS	Creativity	•	
	Achievement	Ability Utilization	
	Working Conditions	Social Status	
	Autonomy		
Median Wages Hourly	\$31.91		
Annual	\$66,380		
Projected Growth	Average (10-20%)		

Computer Systems Design Database administrators

26.5		
% Projected Employment		
Skills	Active Learning	
	Troubleshooting	
	Critical Thinking	
	Coordination	
Abilities	Problem Sensitivity	Written Comprehension
	Deductive Reasoning	Near Vision
	Information Ordering	Oral Expression
	Inductive Reasoning	Originality
Work Activities	Interacting With Computers	Oral Comprehension
	Processing Information	
	Analyzing Data or Information	
	Communicating with Supervisors	s, Peers, or Subordinates
	Identifying Objects, Actions, and	
	Making Decisions and Solving P	
	Thinking Creatively	
	Getting Information	
	Interpreting the Meaning of Inform	mation for Others
	Documenting/Recording Informa	
Work Context	Electronic Mail	
	Spend Time Sitting	
	Importance of Being Exact or Ac	curate
	Letters and Memos	
	Telephone	
	Duration of Typical Work Week	
	Face-to-Face Discussions	
	Time Pressure	
	Freedom to Make Decisions	
	Importance of Repeating Same	Tasks
	Contact With Others	
	Indoors, Environmentally Control	led
	Structured versus Unstructured \	
Job Zone	4	TOIK
Work Styles	Analytical Thinking	Initiative
Trom signed	Attention to Detail	Independence
	Dependability	Self Control
	Cooperation	Stress Tolerance
	Integrity	Innovation
	Adaptability/Flexibility	milo radion
Work Values	Adaptability/1 loxibility	
WOIN VAIGES		
Work Needs	Security	
110	Company Policies and Practices	
	Compensation	
	Ability Utilization	
	Responsibility	
	Working Conditions	
Madian Mana Hourly	\$30.41	
Median Wages Annual	\$63,250	
Projected Growth	Much faster than average (36+%	.)
i rojecieu Growiii	muon laster thall average (30+70	"/

Computer Systems Design Sales representatives, services, all other

% Projected Emp	oloyment	1.6%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone	9	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages	Hourly	\$22.50
	Annual	\$46,790
Projected Gr	owth	Average (10-20%)

Computer Systems Design Business operation specialists, all other

% Projected Employment	: 1.2%
Skills	
Abilities	
Work Activities	
Work Context	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages Hourly	\$26.22
Annual	\$54,550
Projected Growth	Faster than average (21-35%)

Computer Systems Design Computer specialists, all other

% Projected Emp	oloyment	1.3%	
Skills			
Abilities			
Work Activit	ties		
Work Conte	ext		
Job Zone	Job Zone		
Work Style	Work Styles		
Work Value	Work Values		
Work Need	Work Needs		
Median Wages -	Hourly	\$28.57	
wedian wages	Annual	\$59,420	
Projected Growth		Average (10-20%)	

Computer Systems Design Office clerks, general

% Projected Employment	1.8%			
Skills	Active Listening			
	Reading Comprehension			
Abilities	Oral Comprehension			
	Oral Expression			
Work Activities	Interacting With Computers			
	Getting Information			
	Communicating with Supervisors	, Peers, or Subordinates		
Work Context	Telephone			
	Contact With Others			
	Face-to-Face Discussions			
	Importance of Being Exact or Acc	curate		
	Spend Time Sitting			
	Importance of Repeating Same T			
		Indoors, Environmentally Controlled		
	Structured versus Unstructured Work			
	Electronic Mail			
	Work With Work Group or Team			
	Deal With External Customers			
	Freedom to Make Decisions			
Job Zone	2			
Work Styles	Cooperation	Independence		
	Dependability	Self Control		
		Stress Tolerance		
	Attention to Detail	Initiative		
Marte Matrice	Concern for Others			
Work Values	Manal Makes			
Work Needs	Moral Values			
Median Wages Hourly Annual	\$11.09 \$23,070			
Projected Growth	· /			
r rojecteu Growth	Slower than average (0-9%)			

Executive secretaries and administrative assistants

% Projected Employment	1.6%		
% Projected Employment Skills			
SKIIIS	Active Listening Reading Comprehension		
	Time Management		
AL TEC	Speaking	0.15	
Abilities	Oral Comprehension	Oral Expression	
	Written Comprehension	Speech Clarity	
	Written Expression	Near Vision	
Work Activities	Performing Administrative Activ	ities	
	Interacting With Computers		
	Getting Information		
	Communicating with Supervisor	rs, Peers, or Subordinates	
	Organizing, Planning, and Prior		
	Establishing and Maintaining In		
	Communicating with Persons C		
	Documenting/Recording Inform		
	Identifying Objects, Actions, and		
West Occurs to	Tilini		
Work Context	Telephone		
	Contact With Others		
	Face-to-Face Discussions		
	Electronic Mail		
	Letters and Memos		
	Importance of Being Exact or Accurate		
	Work With Work Group or Team		
	Structured versus Unstructured Work		
	Importance of Repeating Same Tasks		
	Spend Time Sitting		
	Freedom to Make Decisions		
	Deal With External Customers		
	Coordinate or Lead Others		
	Indoors, Environmentally Controlled		
	Time Pressure		
Job Zone	3		
Work Styles	Cooperation	Stress Tolerance	
	Attention to Detail	Independence	
	Dependability	Initiative	
	Integrity	Social Orientation	
	Concern for Others	Innovation	
	Self Control	Achievement/Effort	
	Adaptability/Flexibility	Persistence	
Work Values			
Work Needs	Working Conditions		
	Company Policies and Practice	S	
Madian Wagaa Hourly	\$17.29		
Median Wages Annual	\$35,960		
Projected Growth	Average (10-20%)		

Computer Systems Design Accountants and auditors

% Projected Employment	1.0%	
Skills	Mathematics	Time Management
GRIIIS	Active Listening	Active Learning
	<u> </u>	Reading Comprehension
	Critical Thinking	
	Monitoring	Writing
Abilities	Judgment and Decision Making	Noor Vision
Abilities	Problem Sensitivity	Near Vision
	Deductive Reasoning	Oral Comprehension
	Information Ordering	Problem Sensitivity
	Oral Expression	Number Facility
	Written Expression	Speech Clarity
	Mathematical Reasoning	Speech Recognition
	Written Comprehension	Information Ordering
	Inductive Reasoning	
Work Activities	Interacting With Computers	
	Analyzing Data or Information	
	Processing Information	
	Getting Information	
	Documenting/Recording Informa	
	Establishing and Maintaining Inte	erpersonal Relationships
	Organizing, Planning, and Priorit	izing Work
	Communicating with Supervisors	
	Making Decisions and Solving P	roblems
	Interpreting the Meaning of Infor	mation for Others
	Evaluating Information to Determ	nine Compliance with Standards
	Identifying Objects, Actions, and	Events
	Monitor Processes, Materials, or	Surroundings
	Judging the Qualities of Things,	Services, or People
	Updating and Using Relevant Kr	·
Work Context	Telephone	<u> </u>
	Electronic Mail	
	Indoors, Environmentally Contro	lled
	Face-to-Face Discussions	
	Structured versus Unstructured	Work
	Spend Time Sitting	
	Freedom to Make Decisions	
	Importance of Being Exact or Ac	curate
	Work With Work Group or Team	
	Letters and Memos	
	Contact With Others	
	Frequency of Decision Making	
	Time Pressure	
	Impact of Decisions on Co-worke	ore or Company Recults
	Duration of Typical Work Week	ers of Company Results
	Importance of Repeating Same	Tooko
	Consequence of Error	1 d5N5
Job Zone	4	
Work Styles	Attention to Detail	Adaptability/Flexibility
WOIK Styles	Dependability	Independence
	,	Self Control
	Integrity Analytical Thinking	Persistence
	Stress Tolerance	Concern for Others
	Cooperation	Initiative
Monte Value	Achievement/Effort	Leadership
Work Values	Working Conditions	A additional
Work Needs	Working Conditions	Activity
	Security	Ability Utilization
	Compensation	Social Status
Median Wages Hourly	\$25.10	
- Annuai	\$52,210	
Projected Growth	Faster than average (21-35%)	

Computer Systems Design Computer hardware engineers

	•	laruware engineers		
% Projected Employment				
Skills	Complex Problem Solving	Troubleshooting		
	Active Listening	Systems Evaluation		
	Critical Thinking	Operations Analysis		
	Active Learning	Equipment Selection		
	Reading Comprehension	Systems Analysis		
	Time Management	Learning Strategies		
	Judgment and Decision Making			
Abilities	Oral Comprehension			
	Oral Expression			
	Written Comprehension			
	Deductive Reasoning			
	Problem Sensitivity			
Work Activities	Interacting With Computers			
	Making Decisions and Solving P	roblems		
	Communicating with Supervisors	s, Peers, or Subordinates		
	Identifying Objects, Actions, and			
	Getting Information			
Work Context	Electronic Mail			
	Contact With Others			
	Indoors, Environmentally Contro	lled		
	Telephone			
	Coordinate or Lead Others			
	Work With Work Group or Team			
	Face-to-Face Discussions			
		Freedom to Make Decisions		
	Impact of Decisions on Co-work	ers or Company Results		
	Structured versus Unstructured	· ·		
	Frequency of Decision Making	Work		
	Importance of Being Exact or Ac	courate		
	Spend Time Sitting	outato		
	Deal With External Customers			
	Physical Proximity			
Job Zone	4			
Work Styles	Persistence	Innovation		
Train Giyioo	Analytical Thinking	Stress Tolerance		
	Initiative	Self Control		
	Attention to Detail	Leadership		
	Cooperation	Adaptability/Flexibility		
	Integrity	Dependability		
	Independence	Achievement/Effort		
	Concern for Others	VOHIEACHIGHI/EHOLI		
Work Values	Achievement			
WOIN VAIUES	Independence			
Work Needs	Ability Utilization	Autonomy		
WOIN NEEDS	Working Conditions	Achievement		
	Responsibility			
		Activity		
	Creativity	Security		
1 la l	Social Status			
Median Wages Hourly	\$40.59 \$84.420			
Annual	\$84,420 Average (10-20%)			
Projected Growth				

Marketing managers

% Projected Employment	0.8%		
Skills	Critical Thinking	Learning Strategies	
	Coordination	Management of Personnel Resou	rces
	Reading Comprehension	Monitoring	1000
	Active Learning	Operations Analysis	
	Speaking	Management of Financial Resource	res.
	Writing	Complex Problem Solving	300
	Judgment and Decision Making		
	Time Management	Social Perceptiveness	
	Active Listening	Service Orientation	
	Persuasion	Mathematics	
	Negotiation		
Abilities	Written Comprehension	Deductive Reasoning	Speech Recognition
	Oral Comprehension	Fluency of Ideas	Written Expression
	Oral Expression	Inductive Reasoning	Problem Sensitivity
	Speech Clarity	-	•
Work Activities	Communicating with Persons Ou	utside Organization	
	Communicating with Supervisors	s, Peers, or Subordinates	
	Establishing and Maintaining Inte	erpersonal Relationships	
	Making Decisions and Solving P	roblems	
	Interacting With Computers		
	Getting Information		
	Organizing, Planning, and Priori	tizing Work	
	Selling or Influencing Others		
	Judging the Qualities of Things,	Services, or People	
	Processing Information	_	
	Identifying Objects, Actions, and		
	Updating and Using Relevant Kr		
	Interpreting the Meaning of Infor		
	Documenting/Recording Informa		
	Resolving Conflicts and Negotia	ting with Others	
	Thinking Creatively	the with the Dublic	
Work Context	Performing for or Working Direct	tly with the Public	
Work Context	Telephone Electronic Mail		
	Contact With Others		
	Duration of Typical Work Week		
	Deal With External Customers		
	Structured versus Unstructured	Work	
	Face-to-Face Discussions	VVOIR	
	Freedom to Make Decisions		
	Spend Time Sitting		
	Letters and Memos		
	Work With Work Group or Team		
	Impact of Decisions on Co-work		
	Coordinate or Lead Others	, ,	
	Indoors, Environmentally Contro	lled	
	Frequency of Decision Making		
	Importance of Being Exact or Ac	ccurate	
Job Zone	4		
Work Styles	Leadership	Dependability	Innovation
	Adaptability/Flexibility	Achievement/Effort	Stress Tolerance
	Initiative	Independence	Attention to Detail
	Integrity	Cooperation	Self Control
	Persistence	Social Orientation	Concern for Others
Work Values	Achievement		
14/ /	Independence	•	
Work Needs	Working Conditions	Autonomy	
	Ability Utilization	Achievement	
	Creativity		
Median Wages Hourly	\$44.56		
Annuai	\$92,680		
Projected Growth	Faster than average (21-35%)	Occup 50	

Sales managers

% Projected Employment	0.7%		
Skills	Active Listening	Social Perceptiveness	
	Speaking	Reading Comprehension	
	Mathematics	Monitoring	
	Time Management	Negotiation	
	Service Orientation	Active Learning	
	Persuasion	Judgment and Decision Making	
Abilities	Oral Expression	Oral Comprehension	
	Speech Recognition	Written Comprehension	
	Speech Clarity	Problem Sensitivity	
Work Activities	Organizing, Planning, and Priorit	izing Work	
	Communicating with Persons Ou	itside Organization	
	Interacting With Computers		
	Communicating with Supervisors	s, Peers, or Subordinates	
	Making Decisions and Solving P	roblems	
	Establishing and Maintaining Inte	erpersonal Relationships	
	Updating and Using Relevant Kr	owledge	
	Selling or Influencing Others		
	Getting Information		
	Identifying Objects, Actions, and	Events	
	Developing Objectives and Strat	=	
	Guiding, Directing, and Motivatin	g Subordinates	
	Analyzing Data or Information		
	Performing for or Working Direct	ly with the Public	
	Processing Information		
	Thinking Creatively		
	Coordinating the Work and Activ	ities of Others	
	Staffing Organizational Units		
	Scheduling Work and Activities		
	Resolving Conflicts and Negotiat	ing with Others	
Work Context	Telephone		
	Contact With Others		
	Electronic Mail		
	Freedom to Make Decisions		
	Duration of Typical Work Week		
	Frequency of Decision Making		
	Structured versus Unstructured \	Vork	
	Letters and Memos		
	Work With Work Group or Team		
	Coordinate or Lead Others		
	Deal With External Customers	Dec III	
	Impact of Decisions on Co-works		
	Indoors, Environmentally Contro	lied	
	Level of Competition Time Pressure		
		ourato	
	Importance of Being Exact or Ac Responsibility for Outcomes and		
	Face-to-Face Discussions	INGOURO	
	In an Enclosed Vehicle or Equipa	ment	
	Frequency of Conflict Situations	HGIR	
Job Zone	4		
Work Styles	Attention to Detail		
	Integrity		
	Self Control		
	Analytical Thinking		
	Concern for Others		
Work Values	Consoni loi Guiolo		
Work Needs	Authority	Autonomy	
175	Compensation	Working Conditions	
	Activity		
Marking Marca Hourly	\$42.11		
Median Wages Annual	\$87,580		
Projected Growth	Average (10-20%)		
		Occup 51	

Computer Systems Design Bookkeeping, accounting, and auditing clerks

% Projected Employment	1.2%			
Skills	Mathematics			
	Reading Comprehension			
	Time Management			
	Active Listening			
Abilities	Near Vision			
	Mathematical Reasoning			
	Problem Sensitivity			
Work Activities	Interacting With Computers			
	Getting Information			
	Processing Information			
	Establishing and Maintaining Int	erpersonal Relationships		
	Organizing, Planning, and Priori	tizing Work		
Work Context	Telephone			
	Electronic Mail			
	Importance of Being Exact or Ad	ccurate		
	Importance of Repeating Same	Tasks		
	Face-to-Face Discussions			
	Contact With Others			
	Spend Time Sitting			
	Structured versus Unstructured	Structured versus Unstructured Work		
	Time Pressure			
	Freedom to Make Decisions			
	Duration of Typical Work Week			
	Work With Work Group or Team Frequency of Decision Making			
Job Zone	3			
Work Styles	Attention to Detail	Initiative		
	Integrity	Persistence		
	Dependability	Stress Tolerance		
	Cooperation	Adaptability/Flexibility		
	Independence	Concern for Others		
	Self Control			
Work Values				
Work Needs	Working Conditions			
	Independence			
Median Wages Hourly	\$14.18			
Annuai				
Projected Growth	Slower than average (0-9%)			

Financial managers

% Projected Employment	0.6%			
Skills	Mathematics	Writing		Active Learning
	Reading Comprehension	Time Management		Speaking
	Critical Thinking	Instructing		Learning Strategies
	Active Listening	Coordination		Negotiation
	Time Management	Monitoring		Social Perceptiveness
	Judgment and Decision Making	Service Orientation		Management of Personnel Resources
	Mathematics	Persuasion		=
Abilities			. n	Management of Financial Resources
Abilities	Oral Expression	Written Comprehension)TI	Speech Recognition
	Problem Sensitivity	Oral Comprehension		Near Vision
	Deductive Reasoning	Written Expression		Inductive Reasoning
14/aula Aati sitiaa	Speech Clarity			
Work Activities	Interacting With Computers			
	Getting Information			
	Processing Information			
	Analyzing Data or Information			
	Analyzing Data or Information			
	Monitoring and Controlling Reso	urces		
	Communicating with Supervisors	s, Peers, or Subordinate	es	
	Establishing and Maintaining Into	erpersonal Relationship	S	
	Making Decisions and Solving P	roblems		
	Updating and Using Relevant Kr	nowledge		
	Updating and Using Relevant Kr	nowledge		
	Evaluating Information to Detern		tandards	
	Organizing, Planning, and Priorit	tizing Work		
	Selling or Influencing Others	J		
	Performing for or Working Direct	ly with the Public		
	Communicating with Persons Ou	-		
	Documenting/Recording Information	•		
	Developing and Building Teams			
		Surroundings		
	Monitor Processes, Materials, or Surroundings Judging the Qualities of Things, Services, or People			
	Interpreting the Meaning of Infor			
	Provide Consultation and Advice			
Work Context	Telephone		tongo of Pon	eating Same Tasks
Work Comexi	Face-to-Face Discussions	-		=
	Electronic Mail		equence of E of Competition	
				OII
	Frequency of Decision Making		Pressure	-l Oth
	Contact With Others	Coord	inate or Lead	d Otners
	Letters and Memos			
	Spend Time Sitting			
	Impact of Decisions on Co-work		S	
	Structured versus Unstructured			
	Work With Work Group or Team			
	Importance of Being Exact or Ac			
	Indoors, Environmentally Contro	lled		
	Freedom to Make Decisions			
	Duration of Typical Work Week			
	Responsibility for Outcomes and	l Results		
	Deal With External Customers			
Job Zone	5	4		
Work Styles	Integrity	Independence		Innovation
	Cooperation	Persistence		Leadership
	Analytical Thinking	Initiative		Social Orientation
	Dependability	Achievement/Effort		Stress Tolerance
	Attention to Detail	Self Control		
Work Values	Achievement			
Work Needs	Authority	Ability Utilization		Responsibility
	Working Conditions	Company Policies and	l Practices	Autonomy
	Activity	Company i onoice and		
Hourk	\$41.48			
Median Wages Hourly	\$86,280			
Annual Projected Growth				
	Average (10-20%)			

Computer and information scientists, research

% Projected Emp	oloyment	0.7%
Skills		
Abilities		
Work Activi	ties	
Work Cont	ext	
Job Zone	Э	
Work Style	es	
Work Values		
Work Nee	ds	
Median Wages	Hourly	\$43.86
Wediaii Wages	Annual	\$91,230
Projected Growth		Faster than average (21-35%)

Computer Systems Design Technical writers

% Projected Employment			
Skills	Reading Comprehension		
	Writing		
	Time Management		
	Active Learning		
	Active Listening		
	Learning Strategies		
Abilities	Written Comprehension		
	Written Expression		
Work Activities	Getting Information		
	Interacting With Computers		
	Documenting/Recording Information		
	Communicating with Supervisors		
	Updating and Using Relevant Kr	nowledge	
Work Context	Telephone		
	Electronic Mail		
	Face-to-Face Discussions		
	Spend Time Sitting		
	Freedom to Make Decisions		
	Importance of Being Exact or Ac	ccurate	
	Indoors, Environmentally Contro	lled	
	Coordinate or Lead Others		
	Contact With Others		
	Spend Time Making Repetitive Motions		
	Structured versus Unstructured Work		
	Work With Work Group or Team		
	Importance of Repeating Same Tasks		
	Spend Time Using Your Hands t	to Handle, Control, or Feel Objects, Tools, or Controls	
	Time Pressure		
	Impact of Decisions on Co-work	ers or Company Results	
	Duration of Typical Work Week		
Job Zone	4		
Work Styles	Adaptability/Flexibility	Stress Tolerance	
	Attention to Detail	Innovation	
	Cooperation	Analytical Thinking	
	Dependability	Independence	
	Persistence	Initiative	
Work Values	Achievement		
	Independence		
Work Needs	Ability Utilization	Creativity	
	Achievement	Working Conditions	
	Responsibility		
Median Wages Hourly	\$26.52		
Annual	\$55,160		
Projected Growth	Faster than average (21-35%)		

Market research analysts

% Projected Employment	0.7%			
Skills	Reading Comprehension			
	Time Management			
	Writing			
	Active Listening			
	Coordination			
Abilities	Written Comprehension			
	Oral Comprehension			
	Written Expression			
Work Activities	Communicating with Supervisors, Peers, or Subordinates			
	Interacting With Computers			
	Documenting/Recording Information			
	Updating and Using Relevant Knowledge			
	Establishing and Maintaining Interpersonal Relationships			
	Getting Information			
	Processing Information			
	Communicating with Persons Outside Organization			
	Making Decisions and Solving Problems			
	Developing Objectives and Strategies			
	Analyzing Data or Information			
	Interpreting the Meaning of Information for Others			
Work Context	Telephone			
	Electronic Mail			
	Structured versus Unstructured Work			
	Importance of Being Exact or Accurate			
	Indoors, Environmentally Controlled			
	Spend Time Sitting			
	Freedom to Make Decisions			
	Work With Work Group or Team			
	Face-to-Face Discussions			
	Contact With Others			
	Time Pressure			
Job Zone	4			
Work Styles	Achievement/Effort Attention to Detail			
	Initiative Dependability			
	Integrity Innovation			
	Persistence			
Work Values				
Work Needs	Autonomy			
	Working Conditions			
Median Wages Hourly	\$27.55			
Annuai	\$57,300			
Projected Growth	Average (10-20%)			

Computer Systems Design Chief executives

% Projected Employment	0.6%			
Skills	Judgment and Decision Making	Complex Problem Solving	Mathematics	
	_	Reading Comprehension	Time Management	
	Negotiation	Speaking	Active Learning	
	Coordination	Learning Strategies	Systems Evaluation	
	Critical Thinking	Writing	Management of Financial Resources	
	Active Listening	Social Perceptiveness	Management of Personnel Resources	
	Monitoring	Persuasion	Management of Material Resources	
Abilities	Oral Comprehension	Speech Clarity	Problem Sensitivity	
	Oral Expression	Deductive Reasoning	Fluency of Ideas	
	Written Comprehension	Inductive Reasoning	Originality	
	Written Expression	Number Facility		
Work Activities	Making Decisions and Solving Problems			
	Getting Information			
		Communicating with Supervisors, Peers, or Subordinates		
	Communicating with Persons Ou			
	Establishing and Maintaining Inte			
	Developing Objectives and Strat	egies		
	Developing and Building Teams			
	Resolving Conflicts and Negotiat	ing with Others		
	Selling or Influencing Others			
	Analyzing Data or Information	ining a NA/n als		
	Organizing, Planning, and Priorit	izing vvork		
	Thinking Creatively	a Cubardinatas		
	Guiding, Directing, and Motivating			
	Coordinating the Work and Activ			
	Monitoring and Controlling Reso			
	Judging the Qualities of Things, Services, or People			
Work Context	Coaching and Developing Others Telephone Deal With External Customers			
Work Cornext	Electronic Mail Indoors, Environmentally Controlled			
	Face-to-Face Discussions	maoors, Environii	ieritany Controlled	
	Impact of Decisions on Co-worke	ers or Company Results		
	Frequency of Decision Making	or company recounts		
	Freedom to Make Decisions			
	Importance of Being Exact or Ac	curate		
	Duration of Typical Work Week			
	Contact With Others			
	Letters and Memos			
	Structured versus Unstructured Work			
	Responsibility for Outcomes and	Responsibility for Outcomes and Results		
	Time Pressure			
	Work With Work Group or Team			
	Coordinate or Lead Others			
	Responsible for Others' Health a			
	Deal With Unpleasant or Angry F	People		
Job Zone	5		0.110	
Work Styles	Leadership	Independence	Self Control	
	Integrity	Persistence	Innovation	
	Initiative	Adaptability/Flexibility	Analytical Thinking	
	Stress Tolerance	Cooperation	Social Orientation	
	Achievement/Effort	Attention to Detail	Concern for Others	
Work Values	Dependability	Working Conditions		
WOIN VAIUES	Independence Achievement	Recognition		
Work Needs	Authority	Responsibility	Achievement	
WOIN NEEDS	Working Conditions	Compensation	Security	
	Autonomy	Ability Utilization	Variety	
	Activity	Company Policies and Practices	Creativity	
	Social Status	Jany i Silvios and i lactices	5. Jan 111,	
Marking Markey Hourly	\$66.48			
Median Wages Annual	\$142,440			
Projected Growth	Average (10-20%)			
	<u> </u>			

Computer Systems Design Training and development specialists

% Projected Employment	0.5%	
Skills	Active Listening	
	Time Management	
	Speaking	
	Writing	
	Reading Comprehension	
	Critical Thinking	
	Instructing	
	Learning Strategies	
	Active Learning	
	Service Orientation	
Abilities	Speech Clarity	Deductive Reasoning
Abiliacs	Oral Expression	Speech Recognition
	Oral Comprehension	Originality
	Written Comprehension	Written Expression
Work Activities	Communicating with Supervisors	
VV G/K / KGHV/HGG	Getting Information	s, r cors, or outbordinates
	Training and Teaching Others	
	Organizing, Planning, and Priori	tizing Work
	Developing Objectives and Strat	
	Interacting With Computers	legies
	Making Decisions and Solving P	robloms
	Updating and Using Relevant Kr	
	Developing and Building Teams	
	Establishing and Maintaining Into Performing for or Working Direct	
	=	
	Evaluating Information to Determ	· · · · · · · · · · · · · · · · · · ·
	Coaching and Developing Other	
		Services, or Peo Thinking Creatively
	Processing Information Scheduling Work and Activities Coordination the Work and Activities of Others	
	Coordinating the Work and Activ	nues of Others
Work Context	Analyzing Data or Information	
Work Context	Telephone	
	Electronic Mail	
	Freedom to Make Decisions	
	Face-to-Face Discussions	llad
	Indoors, Environmentally Controlled Deal With External Customers	
	Deal With External Customers	
	Coordinate or Lead Others	
	Letters and Memos	an water
	Importance of Being Exact or Ac	curate
	Contact With Others	O D!t-
	Impact of Decisions on Co-work	ers or Company Results
	Duration of Typical Work Week	
	Public Speaking	NA/a-d-
Job Zone	Structured versus Unstructured	VVOIK
Work Styles	Dependability	Adaptability/Flexibility
Work Styles		Attention to Detail
	Integrity	
	Cooperation	Leadership
	Concern for Others Stress Tolerance	Initiative
		Independence
	Social Orientation	Analytical Thinking
Morte Volum	Self Control	
Work Values	Independence	Company Policies and Prostices
Work Needs	Working Conditions	Company Policies and Practices
	Authority	Achievement
11. 1	Co-workers	Responsibility
Median Wages Hourly	\$22.05	
- Annuai		
Projected Growth	Faster than average (21-35%)	

Computer Systems Design

Sales representatives, wholesale and manufacturing, except technical and scientific Products

% Projected Employment	0.6%	mataring, except teerimear and solentine i readets		
Skills	Active Listening			
- Chang	Speaking			
	Time Management			
	Reading Comprehension			
	Persuasion			
	Service Orientation			
Abilities	Oral Expression			
Abilities	Oral Comprehension			
	Speech Clarity			
Work Activities	Establishing and Maintaining Int	ernersonal Relationships		
Work Activities	Getting Information	erpersonal relationships		
	Selling or Influencing Others			
	Communicating with Persons O	utcido Organization		
	Communicating with Supervisor			
Work Context	Telephone	s, Feets, of Subordinates		
Work Comex	Contact With Others			
	Face-to-Face Discussions			
	Deal With External Customers			
	In an Enclosed Vehicle or Equip	amont		
	Freedom to Make Decisions	onen.		
	Structured versus Unstructured Work			
	Electronic Mail			
		Frequency of Decision Making		
	Duration of Typical Work Week			
	Work With Work Group or Team			
	Physical Proximity Time Pressure			
	Level of Competition			
	Importance of Being Exact or A	ocurato.		
	Impact of Decisions on Co-work			
Job Zone		ers or Company Results		
Work Styles	Integrity	Cooperation		
Work Giyles	Dependability	Analytical Thinking		
	Initiative	Independence		
	Stress Tolerance	Achievement/Effort		
	Persistence	Concern for Others		
	Self Control			
	Attention to Detail	Adaptability/Flexibility Innovation		
Work Values	Attention to Detail	IIIIOValion		
Work Needs	Autonomy			
Hourly	\$22.78			
Median Wages Hourly Annual	\$47,380			
Projected Growth	Average (10-20%)			
i Tojecieu Growiii	Average (10-20%)			

Computer Systems Design
First-line supervisors/managers of office and administrative support workers

		office and administrative support workers	
% Projected Employment		T' M.	
Skills	Active Listening	Time Management	
	Speaking	Management of Personnel Resources	
	Reading Comprehension	Judgment and Decision Making	
	Critical Thinking	Instructing	
A L 10st	Monitoring	Social Perceptiveness	
Abilities	Oral Expression	Written Comprehension	
	Oral Comprehension	Speech Clarity	
	Written Expression	Number Facility	
	Near Vision		
Work Activities	Getting Information		
	Communicating with Supervisors		
	Establishing and Maintaining Into	erpersonal Relationships	
	Interacting With Computers		
	Guiding, Directing, and Motivatin		
	Making Decisions and Solving P		
	Organizing, Planning, and Priorit		
	Developing and Building Teams		
	Communicating with Persons Ou		
	Identifying Objects, Actions, and		
	Coordinating the Work and Activ		
	Coaching and Developing Other	S	
	Processing Information	ain a Canandian an with Chandanda	
	Evaluating Information to Determ		
	Updating and Using Relevant Kr		
	Resolving Conflicts and Negotia		
	Performing Administrative Activities	ues	
Work Context	Scheduling Work and Activities		
Work Context	Telephone		
	Electronic Mail Face-to-Face Discussions		
	Contact With Others		
	Work With Work Group or Team Structured versus Unstructured Work		
	Responsibility for Outcomes and		
	Deal With External Customers Freedom to Make Decisions Importance of Being Exact or Accurate Indoors, Environmentally Controlled		
	Frequency of Decision Making	illeu	
	Time Pressure		
	Spend Time Sitting		
	Duration of Typical Work Week		
	Coordinate or Lead Others		
	Letters and Memos		
	Importance of Repeating Same	Tasks	
	Impact of Decisions on Co-work		
Job Zone	3		
Work Styles	Integrity	Leadership	
	Dependability	Self Control	
	Attention to Detail	Independence	
	Cooperation	Adaptability/Flexibility	
	Stress Tolerance	Persistence	
	Initiative	Analytical Thinking	
	Concern for Others	Achievement/Effort	
Work Values	Independence		
	Achievement		
Work Needs	Authority	Working Conditions	
	Autonomy	Responsibility	
	Activity	Achievement	
Madian Warran Hourly			
Median Wages Annual	\$42,400		
Projected Growth	Slower than average (0-9%)		

Team assemblers

% Projected Employment	11.9%
Skills	
Abilities	
Work Activities	Handling and Moving Objects
	Controlling Machines and Processes
	Communicating with Supervisors, Peers, or Subordinates
	Identifying Objects, Actions and Events
	Inspecting Equipment, Structures or Material
	Getting Information
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Wear Common Protective or Safety Equipment
	Importance of Being Exact or Accurate
	Spend Time Making Repetitive Motions
	Spend Time Standing
	Face-to-Face Discussions
	Time Pressure
	Work With Work Group or Team
	Sounds, Noise Levels Are Distracting or Uncomfortable
Job Zone	2
Work Styles	Attention to Detail
	Dependability
Work Values	
Work Needs	
Median Wages Hourly	\$11.60
- Annuai	1 ,
Projected Growth	Slower than average (0-9%)

Dental laboratory technicians

% Projected Employn	ment	12.0%		
Skills		Reading Comprehension	Active Learning	
		Time Management	Speaking	
		Equipment Selection		
Abilities				
Work Activities		Getting Information		
		Organizing, Planning, and Prioritizing Work		
Work Context		Spend Time Using Your Hands	s to Handle, Control, or Feel Objects, Tools, or Controls	
		Time Pressure		
		Indoors, Environmentally Contr	olled	
		Importance of Being Exact or A	Accurate	
		Exposed to Contaminants		
		Face-to-Face Discussions		
		Wear Common Protective or Sa	afety Equipment	
		Structured versus Unstructured	i Work	
		Freedom to Make Decisions		
		Spend Time Making Repetitive	Motions	
		Spend Time Sitting		
		Work With Work Group or Team		
		Impact of Decisions on Co-workers or Company Results		
		Frequency of Decision Making		
		Contact With Others		
	Sounds, Noise Levels Are Distracting or Uncomfortable		racting or Uncomfortable	
Job Zone		2		
Work Styles		Attention to Detail	Stress Tolerance	
		Dependability	Integrity	
		Cooperation	Persistence	
		Independence	Adaptability/Flexibility	
		Achievement/Effort		
Work Values				
Work Needs		Moral Values		
		Independence		
Wedian wades —	Hourly	\$15.50		
	Annual	\$32,240		
Projected Growth	1	Slower than average (0-9%)		

Industrial engineers

% Projected Emplo	oyment	1.3%	og	
Skills		Critical Thinking	Reading Comprehension	
		Active Listening	Complex Problem Solving	
		Time Management	-	
Abilities		Oral Expression	Mathematical Reasoning	
		Deductive Reasoning	Inductive Reasoning	
		Oral Comprehension	Information Ordering	
		Problem Solving	Speech Clarity	
Work Activitie	es	Communicating with Supervisor		
		Making Decisions and Solving	Problems	
		Interacting With Computers		
		Getting Information		
		Analyzing Data or Information		
		Establishing and Maintaining Ir	nterpersonal Relationships	
		Documenting/Recording Inform	nation	
		Processing Information		
Work Contex	<t></t>	Face-to-Face Discussions		
		Telephone		
		Duration of Typical Work Week	(
		Importance of Being Exact or A	Accurate	
		Electronic Mail		
		Wear Common Protective or Safety Equipment		
		Indoors, Environmentally Conti	rolled	
		Work With Work Group or Tear	m	
		Contact With Others		
		Impact of Decisions on Co-workers or Company Results		
		Sounds, Noise Levels Are Distracting or Uncomfortable		
		Structured versus Unstructured	d Work	
		Freedom to Make Decisions		
Job Zone		4		
Work Styles	3	Attention to Detail	Adaptability/Flexibility	Cooperation
		Analytical Thinking	Integrity	Leadership
		Dependability	Innovation	Achievement/Effort
		Initiative	Persistence	Independence
Work Values	S	Achievement		
14/ / 1/		Independence	A	
Work Needs	8	Ability Utilization	Authority	
		Autonomy	Social Status	
		Creativity	Achievement	
		Responsibility	Working Conditions	
	111	Activity		
Median Wages -	Hourly	\$32.05		
Annual		\$66,670		
Projected Grov	NITI	Average (10-20%)		

Medical Equipment
First-line supervisors/managers of production and operating workers

% Projected Employment	3.4%	ers of production and operating		
Skills	Active Listening			
	Reading Comprehension			
	Management of Personnel F	Resources		
	Instructing			
	Monitoring			
	Speaking			
	Time Management			
	Critical Thinking			
	Judgement and Decision Making			
	Coordination			
Abilities	Oral Expression			
	Oral Comprehension			
	Problem Sensitivity			
Work Activities		isors, Peers, or Subordinates		
	Making Decisions and Solvir			
	Coordinating the Work and A	Activities of Others		
	Guiding, Directing, and Motiv	vating Subordinates		
	Getting Information			
	Monitor Processes, Material			
	Organizing, Planning, and P			
	Resolving Conflicts and Neg	=		
	Developing and Building Tea			
	Scheduling Work and Activit			
	Training and Teaching Othe			
	Coaching and Developing O			
	Judging the Qualities of Thir	=		
	Inspecting Equipment, Struc			
	=	Interpersonal Relationships		
W 10 11		Identifying Objects, Actions, and Events		
Work Context	Face-to-Face Discussions			
	Contact With Others			
	Duration of Typical Work Week			
	Responsible for Others' Health and Safety			
	Responsibility for Outcomes			
	Wear Common Protective or Safety Equipment			
	Time Pressure			
	Work With Work Group or To	eam		
		Telephone		
	Freedom to Make Decisions			
	Frequency of Decision Makin	_		
	Importance of Being Exact of			
	Impact of Decisions on Co-v			
	Structured versus Unstructu			
	Sounds, Noise Levels Are D	istracting or Uncomfortable		
	Electronic Mail			
		Coordinate or Lead Others		
Joh Zono	Pace Determined by Speed	or Equipment		
Job Zone Work Styles	3 Dependability	Integrity	Analytical Thinking	
WOIK Styles		Integrity	Concern for Others	
	Leadership Self Control	Cooperation Adaptability/Flexibility		
	Attention to Detail	Initiative	Independence Achievement/Effort	
	Stress Tolerance	Persistence	Innovation	
Work Values	Siless Tolerance	i GISISTETICE	IIIIOvallUII	
Work Needs	Authority			
VVOIN NOOUS	Responsibility			
	Autonomy			
	Co-workers			
Madian Wagaa Hourly				
Median Wages Annua	•			
Projected Growth	Slower than average (0-9%)			
sjestou Gromm	2.3 11 31 11 11 11 14 VOI 14 90 (0 0 70)			

Customer service representatives

% Projected Employm	nent 2	.2%	vice representatives	
Skills		ctive Listening	Time Management	
		leading Comprehension	Service Orientation	
	M	lonitoring	Active Learning	
	S	peaking		
Abilities	С	Oral Comprehension	Speech Recognition	
	C	ral Expression	Inductive Reasoning	
		eductive Reasoning	Near Vision	
		roblem Sensitivity	Written Comprehension	
Work Activities		peech Clarity		
		Setting Information		
		laking Decisions and Solving		
		ocumenting/Recording Inform		
		communicating with Superviso		
		Ionitor Processes, Materials, o		
		dentifying Objects, Actions, an	d Events	
		rocessing Information		
Work Context		Contact With Others		
		elephone		
		ace-to-Face Discussions		
		Indoors, Environmentally Controlled		
		Spend Time Sitting		
		Time Pressure		
		Work With Work Group or Team		
		Electronic Mail		
		Freedom to Make Decisions		
		Deal With External Customers		
		Frequency of Decision Making		
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
		Importance of Being Exact or Accurate		
		nportance of Repeating Same	e Tasks	
Job Zone	2			
Work Styles		Cooperation	Independence	
		Pependability	Persistence	
		ttention to Detail	Integrity	
	_	Self Control Social Orientation		
		Stress Tolerance Analytical Thinking		
		Adaptability/Flexibility Achievement/Effort		
		Initiative Leadership		
Work Values	C	Concern for Others		
Work Values Work Needs				
	lourly A	13.22		
Median vyades ——		13.22 27,490		
		•		
Projected Growth		aster than average (21-35%)		

Ophthalmic laboratory technicians

% Projected Employment	2.7%	•	
Skills	Active Listening	Service Orientation	
	Mathematics	Speaking	
	Reading Comprehension	Writing	
	Instructing	Repairing	
	Coordination	Time Management	
Abilities	Arm-Hand Steadiness		
	Manual Dexterity		
	Finger Dexterity		
	Near Vision		
Work Activities	Inspecting Equipment, Structures,	or Material	
	Getting Information		
	Making Decisions and Solving Prob		
	Controlling Machines and Processe		
	Identifying Objects, Actions, and Ev		
	Communicating with Supervisors, F		
	Monitor Processes, Materials, or Si		
Work Context		Handle, Control, or Feel Objects, Tools, or Controls	
	Importance of Being Exact or Accurate		
	Pace Determined by Speed of Equipment		
	Spend Time Standing		
	Time Pressure		
	Contact With Others		
	Face-to-Face Discussions		
	Indoors, Environmentally Controlled		
	Spend Time Making Repetitive Motions		
	Work With Work Group or Team		
	Importance of Repeating Same Tas		
	Wear Common Protective or Safety		
	Sounds, Noise Levels Are Distracti	ng or Uncomfortable	
Job Zone	2		
Work Styles	Cooperation	Dependability	
	Attention to Detail	Independence	
	Self Control	Adaptability/Flexibility	
	Integrity	Stress Tolerance	
Work Values			
Work Needs	Moral Values		
· · · ·	Independence		
Wedian wades ———	Median Wages Hourly \$11.89		
Annuai	\$24,740		
Projected Growth	Slower than average (0-9%)		

Biomedical engineers

% Projected Employment	0.6%				
Skills	Science	Technology Design	Critical Thinking		
	Speaking	Writing	Operations Analysis		
	Reading Comprehension	Quality Control Analysis	Learning Strategies		
	Time Management	Complex Problem Solving	Mathematics		
	Judgment and Decision Making	Troubleshooting	Active Learning		
	Active Listening	3	3		
Abilities	Oral Expression	Inductive Reasoning			
	Deductive Reasoning	Visualization			
	Written Comprehension	Oral Comprehension			
	Problem Sensitivity				
Work Activities	Inspecting Equipment, Structures, o	r Material			
	Making Decisions and Solving Prob	lems			
	Getting Information				
	Identifying Objects, Actions, and Ev	ents			
	Interacting With Computers				
	Communicating with Supervisors, P				
	Documenting/Recording Information				
	Updating and Using Relevant Know	ledge			
	Processing Information				
	Organizing, Planning, and Prioritizin	g Work			
	Thinking Creatively				
	Estimating the Quantifiable Charact	eristics of Products, Events, or Info	ormation		
Analyzing Data or Information					
Mad Ocata	Communicating with Persons Outside Organization				
Work Context	Indoors, Environmentally Controlled				
	Telephone				
	Frace-to-Face Discussions				
	Freedom to Make Decisions				
	Electronic Mail				
	Importance of Being Exact or Accurate				
	Structured versus Unstructured Work				
	Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls				
			oois, or controls		
	Impact of Decisions on Co-workers or Company Results				
	Work With Work Group or Team Frequency of Decision Making				
	Exposed to Disease or Infections				
	Consequence of Error	·			
Job Zone	4				
Work Styles	Dependability	Stress Tolerance			
	Attention to Detail	Achievement/Effort			
	Cooperation	Initiative			
	Analytical Thinking	Self Control			
	Adaptability/Flexibility	Integrity			
Work Values					
Work Needs					
Median Wages Hourly	\$34.54				
Annuai					
Projected Growth	Faster than average (21-35%)				

Medical Equipment Medical appliance technicians

0/ Projected France int	2 40/		
% Projected Employment	2.1%	Lagrania a Otrata sina	
Skills	Active Listening	Learning Strategies	
	Reading Comprehension	Quality Control Analysis	
	Active Learning		
Abilities	Problem Sensitivity		
	Near Vision		
Work Activities	Getting Information		
	Communicating with Supervisors, Pee	ers, or Subordinates	
	Inspecting Equipment, Structures, or I	Material	
	Handling and Moving Objects		
	Thinking Creatively		
	Scheduling Work and Activities		
	Making Decisions and Solving Problems		
	Assisting and Caring for Others		
	Updating and Using Relevant Knowled	dge	
	Identifying Objects, Actions, and Even	nts	
	Drafting, Laying Out, and Specifying T	Fechnical Devices, Parts, and Equipment	
	Organizing, Planning, and Prioritizing	Work	
	Monitor Processes, Materials, or Surro		
Work Context	Exposed to Contaminants		
	Face-to-Face Discussions		
	Importance of Being Exact or Accurate	е	
	Indoors, Environmentally Controlled		
	Time Pressure		
	Telephone		
	Frequency of Decision Making		
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
	Duration of Typical Work Week		
	Physical Proximity		
	Contact With Others		
	Structured versus Unstructured Work		
	Freedom to Make Decisions		
	Work With Work Group or Team Wear Common Protective or Safety Equipment such as Safety Shoes, Glasses, Gloves, Hearing		
	Protection, Hard Hats, or Life Jackets		
	Sounds, Noise Levels Are Distracting		
Job Zone	3	of Officonflortable	
Work Styles	Attention to Detail	Innovation	
Work digites	Integrity	Adaptability/Flexibility	
	Self Control	Persistence	
		Social Orientation	
	Dependability		
	Stress Tolerance	Achievement/Effort	
	Cooperation	Leadership	
	Initiative	Independence	
Work Values	Concern for Others	Analytical Thinking	
	Maral Values		
Work Needs	Moral Values		
	Independence		
.,	Achievement		
Median Wages Hourly	\$13.98		
Annuai	\$29,080		
Projected Growth	Average (10-20%)		

Business operation specialists, all other

% Projected Employment 0.9%			
Skills			
Abilities			
Work Activiti	ies		
Work Conte	ext		
Job Zone			
Work Style	S		
Work Value	es		
Work Need	ls		
Median Wages	Hourly	\$26.22	
Wedian Wages	Annual	\$54,550	
Projected Gro	owth	Faster than average (21-35%)	

Engineering managers

O/ Dunington I Found	o 70/				
% Projected Employment	0.7%				
Skills	Reading Comprehension	Active Learning			
	Mathematics	Coordination			
	Active Listening	Operations Analysis			
	Critical Thinking	Judgment and Decision Making			
	Complex Problem Solving	Time Management			
Abilities	Oral Comprehension	Information Ordering			
	Written Comprehension	Speech Clarity			
	Inductive Reasoning	Near Vision			
	Oral Expression	Problem Sensitivity			
	Speech Recognition	Written Expression			
	Deductive Reasoning	'			
Work Activities	<u> </u>				
	Making Decisions and Solving Proble	ms			
	Getting Information				
	Communicating with Persons Outside	o Organization			
	Updating and Using Relevant Knowle				
	Coordinating the Work and Activities				
Work Context	Establishing and Maintaining Interper Duration of Typical Work Week	oonai Neialiononipo			
WOIN COINEAL					
	Telephone				
		Face-to-Face Discussions			
	Electronic Mail				
	Freedom to Make Decisions				
	Structured versus Unstructured Work				
	Frequency of Decision Making				
	Indoors, Environmentally Controlled				
	Contact With Others				
	Importance of Being Exact or Accurate				
	Impact of Decisions on Co-workers or Company Results				
	Indoors, Not Environmentally Controlled				
	Coordinate or Lead Others				
	Letters and Memos				
	Responsible for Others' Health and Safety				
	Time Pressure				
	Work With Work Group or Team				
Job Zone	5				
Work Styles	Analytical Thinking	Stress Tolerance			
Trom Egico	Dependability	Self Control			
	Attention to Detail	Persistence			
	Integrity Achievement/Effort	Adaptability/Flexibility			
Work Values		Cooperation			
vvoik values	Independence				
Morts Nonda	Achievement	Mouling Conditions			
Work Needs	Autonomy	Working Conditions			
	Compensation	Achievement			
	Authority	Activity			
	Ability Utilization	Responsibility			
	Company Policies and Practices	Security			
Median Wages Hourly	\$48.44				
Annuai	\$100,760				
Projected Growth	Average (10-20%)				

Medical Equipment Packers and packagers, hand

% Projected Employment	2.0%
Skills	
Abilities	
Work Activities	Handling and Moving Objects
	Performing General Physical Activities
Work Context	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Face-to-Face Discussions
	Contact With Others
	Spend Time Making Repetitive Motions
	Physical Proximity
Job Zone	1
Work Styles	Attention to Detail
	Cooperation
	Dependability
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$8.36
Annual	\$17,390
Projected Growth	Average (10-20%)

Medical Equipment Sewing machine operators

% Projected Employment	1.7%
Skills	
Abilities	
Work Activities	
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Time Pressure
	Importance of Being Exact or Accurate
	Spend Time Making Repetitive Motions
	Spend Time Sitting
	Pace Determined by Speed of Equipment
	Physical Proximity
Job Zone	1
Work Styles	Attention to Detail
	Dependability
Work Values	
Work Needs	Moral Values
	Activity
	Independence
Median Wages Hourly	\$8.82
Annual	\$18,340
Projected Growth	Much slower than average (negative growth)

Machinists

% Projected Employment		1.7%		
Skills		Operation Monitoring	Troubleshooting	
		Operation and Control	Reading Comprehension	
		Mathematics	Quality Control Analysis	
		Equipment Selection	Equipment Maintenance	
Abilities		Problem Sensitivity		
		Arm-Hand Steadiness		
		Information Ordering		
		Near Vision		
Work Activities	S	Controlling Machines and Processes		
		Communicating with Supervisors, Pe		
Work Context	t	Wear Common Protective or Safety I		
			andle, Control, or Feel Objects, Tools, or Controls	
		Sounds, Noise Levels Are Distracting		
		Importance of Being Exact or Accurate		
		Spend Time Standing		
		Face-to-Face Discussions		
		Exposed to Hazardous Equipment		
		Indoors, Not Environmentally Control	lled	
		Contact With Others		
		Time Pressure		
		Freedom to Make Decisions		
		Frequency of Decision Making		
		Responsibility for Outcomes and Res	sults	
		Duration of Typical Work Week		
Job Zone		3		
Work Styles		Attention to Detail		
		Analytical Thinking		
		Dependability		
Work Values				
Work Needs		Moral Values		
Median Wages -	Hourly	\$16.51		
	Annual	\$34,350		
Projected Growth		Slower than average (0-9%)		

Sales representatives, wholesale and manufacturing, technical and scientific products

% Projected Employ		1.5%	manufacturing, tecrimical and scientific products			
Skills		Speaking	Service Orientation			
		Persuasion	Negotiation			
		Active Listening	Reading Comprehension			
		Time Management	Critical Thinking			
		Social Perceptiveness	Active Learning			
Abilities		Oral Expression				
		Oral Comprehension				
		Speech Clarity				
		Speech Recognition				
Work Activities	3	Selling or Influencing Others				
		Establishing and Maintaining				
		Communicating with Persons				
		Making Decisions and Solvin				
			sors, Peers, or Subordinates			
		Getting Information				
Work Context		Telephone				
		Contact With Others				
		Duration of Typical Work Week				
		Deal With External Customers				
		Electronic Mail				
		Face-to-Face Discussions				
		Structured versus Unstructured Work				
		Freedom to Make Decisions				
		Impact of Decisions on Co-workers or Company Results				
		Level of Competition				
		Letters and Memos				
		Importance of Being Exact or Accurate				
		Work With Work Group or Te				
1.1.7		Indoors, Environmentally Co	ntrolled			
Job Zone		4	Chrone Televenee			
Work Styles		Initiative	Stress Tolerance			
		Independence	Adaptability/Flexibility			
		Achievement/Effort	Integrity			
		Persistence	Self Control			
		Dependability	Cooperation			
Work Values		Attention to Detail				
Work Needs		Autonomy				
WOIK NEEds		Achievement				
	Hourly	\$29.21				
Median Wages —	Hourly Annual	\$60,760				
Projected Grow		Average (10-20%)				
Projectea Growth		Average (10-20%)				

Computer software engineers, applications

% Projected Employment	0.3%			
Skills	Programming	Operations Analysis		
S.u.no	Critical Thinking	Systems Analysis		
	Complex Problem Solving	Quality Control Analysis		
	Troubleshooting	Active Listening		
	Active Learning	9		
		Speaking Time Management		
	Technology Design	Time Management		
	Judgment and Decision Making	Coordination		
A L West	Reading Comprehension	D. 11 O. 31 3		
Abilities	Oral Comprehension	Problem Sensitivity		
	Deductive Reasoning	Speech Clarity		
	Near Vision	Written Comprehension		
	Inductive Reasoning			
Work Activities	Autonomy			
	Interacting With Computers			
	Updating and Using Relevant Knowle	dge		
	Getting Information			
	Making Decisions and Solving Problem	ms		
	Communicating with Supervisors, Pee	ers, or Subordinates		
	Thinking Creatively			
	Identifying Objects, Actions, and Ever	nts		
	Analyzing Data or Information			
	Processing Information			
Work Context	Face-to-Face Discussions			
	Electronic Mail			
	Spend Time Sitting			
	Work With Work Group or Team			
	Indoors, Environmentally Controlled			
	Freedom to Make Decisions			
	Importance of Being Exact or Accurate	е		
1.1.7	Coordinate or Lead Others			
Job Zone	4	L		
Work Styles	Analytical Thinking	Innovation		
	Attention to Detail	Persistence		
	Cooperation	Adaptability/Flexibility		
	Dependability	Initiative		
	Achievement/Effort			
Work Values	Achievement			
	Independence			
Work Needs	Ability Utilization	Autonomy		
	Working Conditions	Achievement		
	Responsibility	Activity		
	Creativity	Security		
	Social Status			
Madian Wagaa Hourly	\$37.06			
Median Wages Annual	\$77,090			
Projected Growth	Much faster than average (36+%)			

Sales representatives, wholesale and manufacturing, except technical and scientific Products

% Projected Employment	1.4%	ring, except technical and scientific Products		
Skills	Active Listening			
	Speaking			
	Time Management			
	Reading Comprehension			
	Persuasion			
	Service Orientation			
Abilities	Oral Expression			
	Oral Comprehension			
	Speech Clarity			
Work Activities	Establishing and Maintaining Interper	sonal Relationships		
	Getting Information			
	Selling or Influencing Others			
	Communicating with Persons Outside	e Organization		
	Communicating with Supervisors, Pee	ers, or Subordinates		
Work Context	Telephone			
	Contact With Others			
	Face-to-Face Discussions			
	Deal With External Customers			
	In an Enclosed Vehicle or Equipment			
	Freedom to Make Decisions			
	Structured versus Unstructured Work			
	Electronic Mail			
	Frequency of Decision Making			
	Duration of Typical Work Week			
	Work With Work Group or Team			
	Physical Proximity			
	Time Pressure			
	Level of Competition			
	Importance of Being Exact or Accurate			
	Impact of Decisions on Co-workers or Company Results			
Job Zone	3			
Work Styles	Integrity	Cooperation		
	Dependability	Analytical Thinking		
	Initiative	Independence		
	Stress Tolerance	Achievement/Effort		
	Persistence	Concern for Others		
	Self Control	Adaptability/Flexibility		
	Attention to Detail	Innovation		
Work Values				
Work Needs	Autonomy			
Median Wages Hourly	_\$22.78			
Annuai	\$47,380			
Projected Growth	Average (10-20%)			

Medical Equipment Truck drivers, light or delivery services

% Projected Employment	1.3%
Skills	
Abilities	
Work Activities	Operating Vehicles, Mechanized Devices, or Equipment
	Getting Information
	Handling and Moving Objects
	Performing for or Working Directly with the Public
	Performing General Physical Activities
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Outdoors, Exposed to Weather
	Contact With Others
	In an Enclosed Vehicle or Equipment
	Time Pressure
	Telephone
	Face-to-Face Discussions
	Deal With External Customers
	Importance of Being Exact or Accurate
	Duration of Typical Work Week
	Physical Proximity
	Responsible for Others' Health and Safety
	Exposed to Contaminants
	Work With Work Group or Team
	Very Hot or Cold Temperatures
	Freedom to Make Decisions
	Outdoors, Under Cover
	Wear Common Protective or Safety Equipment
	Letters and Memos
Job Zone	2
Work Styles	Integrity
	Dependability
	Independence
	Attention to Detail
Work Values	
Work Needs	Independence
Median Wages Hourl	/ \$11.92
Annua	· • • • • • • • • • • • • • • • • • • •
Projected Growth	Average (10-20%)

Computer-controlled machine tool operators, metal and plastic

% Projected Employment		1.3%		
Skills	-	Operation Monitoring		
		Operation and Control		
		Quality Control Analysis		
		Active Listening		
Abilities		Hearing Sensitivity		
		Problem Sensitivity		
		Reaction Time		
Work Activitie	S	Controlling Machines and Processes		
		Inspecting Equipment, Structures, or Material		
		Getting Information		
Work Contex	t	Wear Common Protective or Safety Equipment		
		Importance of Being Exact or Accurate		
		Spend Time Standing		
		Exposed to Contaminants		
		Sounds, Noise Levels Are Distracting or Uncomfortable		
		Time Pressure		
		Frequency of Decision Making		
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
		Importance of Repeating Same Tasks		
		Exposed to Hazardous Equipment		
		Work With Work Group or Team		
		Face-to-Face Discussions		
		Pace Determined by Speed of Equipment		
		Duration of Typical Work Week		
		Spend Time Making Repetitive Motions		
		Freedom to Make Decisions		
Job Zone		2		
Work Styles		Attention to Detail		
		Dependability		
		Cooperation		
Work Values				
Work Needs		Moral Values		
		Activity		
Median Wages -	Hourly	\$14.91		
	Annual	\$31,010		
Projected Growth		Much slower than average (negative growth)		

General and operations managers

% Projected Employ	mont	1.6%	ono managoro		
% Projected Employ Skills	ment		Reading Comprehension		
Skills		Active Listening			
		Management of Personnel Resources	Speaking Management of Financial Resources		
		Time Management	Management of Financial Resources		
		Judgment and Decision Making	Active Listening		
		Monitoring	Persuasion		
Abilities		Oral Expression	Speech Recognition		
		Oral Comprehension	Written Comprehension		
		Problem Sensitivity	Deductive Reasoning		
		Speech Clarity	Inductive Reasoning		
Work Activities	3	Getting Information			
		Communicating with Supervisors, Peers, or Subordinates			
Work Context		Telephone			
		Duration of Typical Work Week			
		Work With Work Group or Team			
		Face-to-Face Discussions			
		Contact With Others			
		Frequency of Decision Making			
		Freedom to Make Decisions			
		Importance of Being Exact or Accurate			
		Indoors, Environmentally Controlled			
		Impact of Decisions on Co-workers or Company Results			
		Responsibility for Outcomes and Results			
		Deal With External Customers			
		Structured versus Unstructured Work			
		Coordinate or Lead Others			
		Time Pressure			
		Electronic Mail			
		Responsible for Others' Health and Safety			
		Deal With Unpleasant of Angry People			
		Letters and Memos			
Job Zone		4			
Work Styles		Dependability	Analytical Thinking		
		Leadership	Independence		
		Integrity	Stress Tolerance		
		Attention to Detail Social Orientation			
		Initiative	Adaptability/Flexibility		
		Self Control	Innovation		
		Cooperation Persistence			
		Concern for Others	Achievement/Effort		
Work Values					
Work Needs					
Marilian Manas	Hourly	\$39.17			
iviedian vvades —	Annual	\$81,480			
Projected Growt		Average (10-20%)			

Mechanical engineers

% Projected Employment	1.1%	ai onginooro		
Skills	Mathematics	Active Listening	Speaking	
	Complex Problem Solving	Judgment and Decision Making	Operations Analysis	
	Critical Thinking	Time Management	Coordination	
	Reading Comprehension	Writing	Active Learning	
	Science	G	Ğ	
Abilities	Oral Comprehension	Inductive Reasoning		
	Problem Sensitivity	Information Ordering		
	Written Comprehension	Near Vision		
	Deductive Reasoning	Oral Expression		
Work Activities	Making Decisions and Solving Pro	oblems		
	Interacting With Computers			
	Getting Information			
	Communicating with Supervisors,	Peers, or Subordinates		
Work Context	Indoors, Environmentally Controll			
	Face-to-Face Discussions			
	Electronic Mail			
	Freedom to Make Decisions			
	Telephone			
	Work With Work Group or Team			
	Contact With Others			
	Duration of Typical Work Week			
	Importance of Being Exact or Accurate			
	Letters and Memos			
	Impact of Decisions on Co-workers or Company Results			
	Structured versus Unstructured Work			
	Frequency of Decision Making			
	Time Pressure			
	Coordinate or Lead Others			
Job Zone	4			
Work Styles	Attention to Detail			
•	Cooperation			
	Dependability			
	Leadership			
	Achievement/Effort			
	Adaptability/Flexibility			
	Analytical Thinking			
Work Values	Independence			
	Achievement			
Work Needs	Autonomy	Social Status		
	Ability Utilization	Activity		
	Creativity	Working Conditions		
	Responsibility	Security		
	Achievement	,		
Madian Wagas Hourly				
Median Wages Annual				
Projected Growth	Average (10-20%)			

Medical Equipment

Multiple machine tool setters, operators, and tenders, metal and plastic

% Projected Emplo		1.1%	erators, and tenders, metal and plastic	
Skills	,	Quality Control Analysis	Troubleshooting	
		Operation and Control	Learning Strategies	
		Repairing	Critical Thinking	
		Equipment Maintenance	Coordination	
		Operation Monitoring	Coordination	
Abilities		Control Precision		
7 1.5		Information Ordering		
		Manual Dexterity		
Work Activities	S	Controlling Machines and Proces	sses	
		Repairing and Maintaining Mech		
		Getting Information		
		Handling and Moving Objects		
		Inspecting Equipment, Structures	s, or Material	
Work Context	t	Wear Common Protective or Saf		
		Exposed to Contaminants		
		Sounds, Noise Levels Are Distra	cting or Uncomfortable	
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
		Duration of Typical Work Week	, , ,	
		Exposed to Hazardous Equipme	nt	
		Face-to-Face Discussions		
		Pace Determined by Speed of Ed	quipment	
		Importance of Being Exact or Accurate		
		Spend Time Standing		
		Time Pressure		
		Work With Work Group or Team		
		Contact With Others		
		Exposed to Minor Burns, Cuts, B	ites, or Stings	
Job Zone		2	,	
Work Styles		Attention to Detail		
		Dependability		
		Independence		
		Initiative		
		Persistence		
Work Values				
Work Needs		Moral Values		
Madian Magas	Hourly	\$14.32		
Median Wages -	Annual	\$29,780		
Projected Grow	rth	Slower than average (0-9%)		

Maintenance and repair workers, general

% Projected Emplo	yment	1.1%		
Skills		Equipment Maintenance	Active Listening	
		Repairing	Installation	
		Troubleshooting	Equipment Selection	
Abilities		Problem Sensitivity		
Work Activitie	S	Inspecting Equipment, Structu	res, or Material	
		Performing General Physical Activities		
		Repairing and Maintaining Mechanical Equipment		
Work Contex	t	Face-to-Face Discussions		
		Spend Time Using Your Hand	ls to Handle, Control, or Feel Objects, Tools, or Controls	
		Freedom to Make Decisions		
		Telephone		
		Contact With Others		
		Spend Time Standing		
		Indoors, Environmentally Controlled		
		Wear Common Protective or Safety Equipment		
		Exposed to Minor Burns, Cuts, Bites, or Stings		
		Structured versus Unstructure	ed Work	
Job Zone		3		
Work Styles		Dependability	Integrity	
		Attention to Detail	Initiative	
		Cooperation	Analytical Thinking	
		Self Control	Concern for Others	
Work Values				
Work Needs		Moral Values		
Median Wages -	Hourly	\$15.01		
	Annual	\$31,210		
Projected Grow	vth	Average (10-20%)		

Engineers, all other

% Projected Emple	oyment	0.4%
Skills		
Abilities		
Work Activitie	es	
Work Contex	<t< td=""><td></td></t<>	
Job Zone		
Work Styles	3	
Work Values	S	
Work Needs	3	
Median Wages -	Hourly	\$37.09
Wedian Wages	Annual	\$77,150
Projected Growth		Average (10-20%)

Medical Equipment Network and computer systems administrators

		Metwork and compater by		
% Projected Emplo	oyment	0.3%		
Skills		Troubleshooting	Complex Problem Solving	
		Reading Comprehension	Critical Thinking	
		Active Listening	Service Orientation	
		Active Learning		
Abilities		Near Vision	Written Comprehension	
		Problem Sensitivity	Information Ordering	
		Inductive Reasoning	Deductive Reasoning	
		Oral Comprehension	Finger Dexterity	
		Oral Expression	,	
Work Activitie	es	Interacting With Computers		
		Updating and Using Relevant Knowle	dae	
		Making Decisions and Solving Proble	•	
		Getting Information		
		Communicating with Supervisors, Pee	ers. or Subordinates	
		Processing Information		
		Identifying Objects, Actions, and Ever	nts	
Work Contex	ct	Electronic Mail	Structured versus Unstructure	d Work
		Telephone	Importance of Being Exact or A	
		Face-to-Face Discussions	Freedom to Make Decisions	
		Indoors, Environmentally Controlled	Work With Work Group or Tea	m
		Contact With Others	Duration of Typical Work Weel	
		Contact Will Calors	Spend Time Sitting	•
			Time Pressure	
			Time T ressure	
Job Zone			4	
Work Styles	}	Attention to Detail	Stress Tolerance	Persistence
•		Dependability	Adaptability/Flexibility	Innovation
		Analytical Thinking	Integrity	Self Control
		Cooperation	Achievement/Effort	Leadership
		Initiative	Independence	
Work Values	S			
Work Needs				
	Hourly	\$28.81		
Wedian Wades —	Annual	\$59,930		
Projected Grov		Much faster than average (36+%)		

Production, planning, and expediting clerks

% Projected Employment	1.4%			
Skills	Active Listening			
	Reading Comprehension			
	Coordination			
	Speaking			
Abilities	Written Comprehension			
Work Activities	Getting Information			
	Communicating with Supervisor	s, Peers, or Subordinates		
	Interacting With Computers			
	Organizing, Planning, and Prioritizing Work			
	Identifying Objects, Actions, and	I Events		
	Monitor Processes, Materials, o	r Surroundings		
	Scheduling Work and Activities			
	Making Decisions and Solving F	Problems		
Work Context	Face-to-Face Discussions			
	Telephone			
	Indoors, Environmentally Contro	olled		
	Time Pressure			
	Electronic Mail			
	Frequency of Decision Making			
	Freedom to Make Decisions			
	Importance of Being Exact or Accurate			
	Work With Work Group or Team			
	Contact With Others			
	Impact of Decisions on Co-workers or Company Results			
	Duration of Typical Work Week			
	Structured versus Unstructured Work			
	Importance of Repeating Same Tasks			
	Responsibility for Outcomes and Results			
		Deal With External Customers		
	Exposed to Contaminants			
Job Zone	2			
Work Styles	Attention to Detail	Persistence		
	Dependability	Adaptability/Flexibility		
	Cooperation	Self Control		
	Stress Tolerance	Achievement/Effort		
	Independence	Integrity		
Marit Males	Initiative	Analytical Thinking		
Work Values				
Work Needs	Φ40.0 7			
Median Wages Hourly				
Annua	* *			
Projected Growth	Slower than average (0-9%)			

Medical Equipment Electrical and electronic equipment assemblers

% Projected Emplo	yment	1.0%	• •	
Skills	-	Quality Control Analysis	Reading Comprehension	
		Troubleshooting	Learning Strategies	
		Equipment Selection	Monitoring	
		Instructing	Active Learning	
		Time Management	· ·	
Abilities		Near Vision		
Work Activitie	S	Identifying Objects, Actions, and Events		
		Handling and Moving Objects		
		Evaluating Information to Deter	mine Compliance with Standards	
		Inspecting Equipment, Structure	es, or Material	
		Monitor Processes, Materials, o	or Surroundings	
		Judging the Qualities of Things	, Services, or People	
		Performing General Physical A	ctivities	
		Controlling Machines and Processes		
		Getting Information		
Work Contex	t	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
		Wear Common Protective or Sa	afety Equipment	
		Importance of Being Exact or A	ccurate	
		Contact With Others		
		Work With Work Group or Team		
		Face-to-Face Discussions		
		Physical Proximity		
		Time Pressure		
Job Zone		2		
Work Styles		Attention to Detail		
		Dependability		
		Cooperation		
		Independence		
		Self Control		
Work Values				
Work Needs		Moral Values		
Median Wages -	Hourly	\$12.08		
wieulan wayes -	Annual	\$25,130		
Projected Growth		Much slower than average (negative growth)		

Medical Equipment Helpers--Production workers

% Projected Employme	nt 1.0%
Skills	
Abilities	
Work Activities	Handling and Moving Objects
	Performing General Physical Activities
Work Context	Wear Common Protective or Safety Equipment
	Time Pressure
	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Exposed to Contaminants
	Duration of Typical Work Week
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Importance of Being Exact or Accurate
	Spend Time Bending or Twisting the Body
	Exposed to Minor Burns, Cuts, Bites, or Stings
Job Zone	1
Work Styles	Dependability
	Attention to Detail
Work Values	
Work Needs	Moral Values
Median Wages Ho	urly \$9.80
Anı	ual \$20,390
Projected Growth	Slower than average (0-9%)

Medical Equipment Industrial production managers

% Projected Emplo	vment	1.0%	on managere		
Skills	ymen	Active Listening	Monitoring		
Onino		Judgment and Decision Making	Time Management		
		Critical Thinking	Complex Problem Solving		
		Reading Comprehension	Speaking		
		Management of Personnel Resources	. •		
		Coordination	mstructing		
Abilities		Oral Comprehension	Problem Sensitivity		
Abilities		Oral Expression	Written Comprehension		
		Inductive Reasoning	Deductive Reasoning		
Work Activitie	9	Getting Information	Deductive Reasoning		
VVOIK Addivide	3	Communicating with Supervisors, Peer	rs or Subordinates		
		Guiding, Directing, and Motivating Sub	•		
		Making Decisions and Solving Problem			
		Coordinating the Work and Activities of			
		Organizing, Planning, and Prioritizing V			
		Scheduling Work and Activities	VOIR		
		Identifying Objects, Actions, and Event	e		
Work Contex	t	Face-to-Face Discussions	3		
Work Comox	•	Telephone			
		Freedom to Make Decisions			
		Contact With Others			
		Structured versus Unstructured Work			
		Responsibility for Outcomes and Resul	lts		
		Work With Work Group or Team			
		Electronic Mail			
		Indoors, Environmentally Controlled			
		Coordinate or Lead Others			
		Duration of Typical Work Week			
		Frequency of Decision Making			
		Time Pressure			
		Impact of Decisions on Co-workers or Company Results Importance of Being Exact or Accurate			
		Responsibility for Others' Health and S			
		Letters and Memos	uicty		
Job Zone		4			
Work Styles		Leadership	Initiative	Persistence	
		Attention to Detail	Cooperation	Analytical Thinking	
		Adaptability/Flexibility	Self Control	Concern for Others	
		Integrity	Stress Tolerance	Innovation	
		Dependability	Independence	Social Orientation	
Work Values		Independence	Achievement/Effort		
Work Needs		Authority	Company Policies and Practices		
		Autonomy	Compensation		
		Activity	Creativity		
		Responsibility	,		
Mar Para 147	Hourly	\$36.34			
Median Wages -	Annual	\$75,580			
Projected Grow		Slower than average (0-9%)			
		3 \ /			

Mechanical engineering technicians

% Projected Employ	vment	0.3%	9
Skills	ymon	Reading Comprehension	Complex Problem Solving
O.m.o		Active Listening	Time Management
		Coordination	Active Learning
		Judgment and Decision Making	Troubleshooting
		Mathematics	Troubleonoung
Abilities		Deductive Reasoning	
7.10.11.00		Written Comprehension	
		Near Vision	
		Oral Comprehension	
		Problem Sensitivity	
Work Activities	S	Getting Information	
		Interacting With Computers	
		Communicating with Supervisors, P	eers, or Subordinates
Work Context		Face-to-Face Discussions	·
		Telephone	
		Wear Common Protective or Safety	Equipment
		Structured versus Unstructured Wor	
		Electronic Mail	
		Freedom to Make Decisions	
		Impact of Decisions on Co-workers	or Company Results
		Contact With Others	
		Responsible for Others' Health and	Safety
Job Zone		3	
Work Styles		Attention to Detail	
		Analytical Thinking	
		Dependability	
Work Values			
Work Needs		Moral Values	
		Achievement	
		Activity	
Median Wages -	Hourly	\$21.55	
Annual		\$44,830	
Projected Growth		Average (10-20%)	

Network systems and data communications analysts

	Network systems and data c	ommunications analysis		
% Projected Employment	0.1%			
Skills	Equipment Selection	Installation	Systems Evaluation	
	Troubleshooting	Reading Comprehension	Operations Analysis	
	Complex Problem Solving	Judgment and Decision Making	Equipment Maintenance	
	Active Listening	Technology Design	Systems Analysis	
	Active Learning	Coordination	Instructing	
	Critical Thinking		S	
Abilities	Near Vision			
	Written Comprehension			
	Deductive Reasoning			
	Problem Sensitivity			
Work Activities	Interacting With Computers			
	Communicating with Supervisors, Pee	ers. or Subordinates		
	Getting Information			
	Thinking Creatively			
	Communicating with Persons Outside	Organization		
	Establishing and Maintaining Interper			
	Identifying Objects, Actions, and Ever			
	Organizing, Planning, and Prioritizing			
	Making Decisions and Solving Proble			
	Updating and Using Relevant Knowle			
	Monitor Processes, Materials, or Surr			
	Judging the Qualities of Things, Services, or People Evaluating Information to Determine Compliance with Standards			
	Analyzing Data or Information			
	Interpreting the Meaning of Information for Others			
	Processing Information	of for Others		
	Documenting/Recording Information			
Work Context	Telephone			
Work Comox	Electronic Mail			
	Indoors, Environmentally Controlled			
	Face-to-Face Discussions			
		9		
	Importance of Being Exact or Accurate Structured versus Unstructured Work			
	Duration of Typical Work Week			
	Freedom to Make Decisions			
	Work With Work Group or Team			
	Contact With Others			
	Spend Time Sitting			
Job Zone	3			
Work Styles	Attention to Detail	Persistence		
WOIN Styles	Dependability	Achievement/Effort		
	Analytical Thinking	Self Control		
	Stress Tolerance	Cooperation		
	Initiative	•		
		Independence		
Work Values	Adaptability/Flexibility Achievement	Integrity		
		Autonomy		
Work Needs	Ability Utilization	Autonomy		
	Compensation	Working Conditions		
He d	Company Policies and Practices	Security		
Median Wages Hourly	\$29.69			
Annuai	\$61,750			
Projected Growth	Much faster than average (36+%)			

Medical and Diagnostic Labs. Medical and clinical laboratory technologists

% Projected Employment	12 60/		
		Critical Thinking	
Skills	Quality Control Analysis	Critical Thinking	
	Equipment Maintenance	Science	
	Reading Comprehension	Active Listening	
	Troubleshooting	Complex Problem Solving	
	Operation and Control	Monitoring	
	Operation Monitoring	Time Management	
Abilities	Near Vision		
	Problem Sensitivity		
	Inductive Reasoning		
	Oral Expression		
	Written Comprehension		
	Deductive Reasoning		
14/2 1/2 4 2 4 1 1 1 1 2	Information Ordering		
Work Activities	Making Decisions and Solving P		
	Identifying Objects, Actions, and		
	Documenting/Recording Informa		
	Evaluating Information to Determ	nine Compliance with Standards	
	Getting Information		
	Organizing, Planning, and Priorit	izing Work	
	Processing Information		
	Updating and Using Relevant Kr	nowledge	
	Establishing and Maintaining Inte		
	Inspecting Equipment, Structure		
	Communicating with Supervisors		
		s, i eers, or Subordinates	
	Interacting With Computers	O	
Marile Constant	Monitor Processes, Materials, or	Surroundings	
Work Context	Face-to-Face Discussions		
	Exposed to Disease or Infections		
	Time Pressure		
	Importance of Being Exact or Ac	curate	
	Telephone		
	Wear Common Protective or Saf	ety Equipment	
	Indoors, Environmentally Contro		
	Work With Work Group or Team Contact With Others		
	Importance of Repeating Same Tasks		
		1 43K3	
	Frequency of Decision Making		
	Electronic Mail		
	Freedom to Make Decisions		
	Impact of Decisions on Co-worke	ers or Company Results	
	Exposed to Contaminants		
	Consequence of Error		
	Coordinate or Lead Others		
	Spend Time Making Repetitive N	Motions	
		o Handle, Control, or Feel Objects, Tools, or Controls	
	Structured versus Unstructured		
	Exposed to Hazardous Condition		
	Deal With External Customers		
Job Zone	4		
Work Styles	Attention to Detail	Dependability	
WOIN Styles		'	
	Analytical Thinking	Integrity	
	Independence	Stress Tolerance	
	Initiative	Adaptability/Flexibility	
	Achievement/Effort	Innovation	
	Persistence		
Work Values	Achievement		
Work Needs	Ability Utilization		
	Activity		
Madian Wana Hourly	<u> </u>		
Wedian Wages -	•		
Annuai			
Annual Projected Growth	Faster than average (21-35%)		

Medical and Diagnostic Labs. Medical and clinical laboratory technicians

	Medical and clinical laboratory technicians
% Projected Employment	
Skills	Reading Comprehension
	Active Listening
	Speaking
	Science
	Equipment Maintenance
	Instructing
	Time Management
Abilities	Near Vision
	Deductive Reasoning
	Inductive Reasoning
	Oral Comprehension
	Problem Sensitivity
	Arm-Hand Steadiness
	Information Ordering
	Visual Color Discrimination
	Written Comprehension
Work Activities	Documenting/Recording Information
WOIN Activities	Getting Information
	Evaluating Information to Determine Compliance with Standards Inspecting Equipment, Structures, or Material
	Updating and Using Relevant Knowledge
	Interacting With Computers
	Communicating with Supervisors, Peers, or Subordinates
11/ 1 0 1	Processing Information
Work Context	Indoors, Environmentally Controlled
	Telephone
	Face-to-Face Discussions
	Contact With Others
	Importance of Being Exact or Accurate
	Exposed to Disease or Infections
	Wear Common Protective or Safety Equipment
	Consequence of Error
	Work With Work Group or Team
	Spend Time Standing
	Structured versus Unstructured Work
	Impact of Decisions on Co-workers or Company Results
Job Zone	2
Work Styles	Integrity
1	Attention to Detail
	Dependability
	Concern for Others
	Stress Tolerance
	Cooperation
	Self Control
	Independence
	Initiative
Work Values	
Work Needs	Ability Utilization
Work Noods	Moral Values
Madian Wagaa Hourly	\$15.24
Median Wages Annual	\$13.700
Projected Growth	
Frojecieu Growin	Faster than average (21-35%)

Medical and Diagnostic Labs. Healthcare support workers, all other

% Projected Emp	oloyment	10.3%	
Skills	Skills		
Abilities			
Work Activit	ties		
Work Conte	Work Context		
Job Zone	Job Zone		
Work Style	Work Styles		
Work Valu	Work Values		
Work Nee	Work Needs		
Median Wages	Hourly	\$12.51	
Annual \$26,020			
Projected Growth		Faster than average (21-35%)	

Medical and Diagnostic Labs. Radiologic technologists and technicians

0/ Projected France in the		logists and technicians	
% Projected Employment		Time Management	Maritin a
Skills	Active Listening	Time Management	Writing
	Speaking	Instructing	Learning Strategies
	Reading Comprehension	Coordination	Service Orientation
AL TEC.	Critical Thinking	Social Perceptiveness	
Abilities	Near Vision	Speech Clarity	
	Problem Sensitivity	Written Comprehension	
	Oral Comprehension	Arm-Hand Steadiness	
	Control Precision	Speech Recognition	
	Oral Expression		
Work Activities	Assisting and Caring for Others		
	Performing for or Working Direct	ly with the Public	
	Communicating with Supervisors	s, Peers, or Subordinates	
	Documenting/Recording Informa	tion	
	Interacting With Computers		
	Handling and Moving Objects		
	Identifying Objects, Actions, and	Events	
	Establishing and Maintaining Inte		
	Getting Information		
	Performing General Physical Act	tivities	
	Updating and Using Relevant Kn		
	Making Decisions and Solving P		
	Monitor Processes, Materials, or		
	Controlling Machines and Proces	_	
	Evaluating Information to Determ		
Work Context	Exposed to Disease or Infections		
Work Comest	Indoors, Environmentally Control		
	Telephone	iicu	
	Face-to-Face Discussions		
	Contact With Others		
	Deal With External Customers		
	Work With Work Group or Team		
	Freedom to Make Decisions	a mate	
	Importance of Being Exact or Ac	curate	
	Frequency of Decision Making	O	
	Impact of Decisions on Co-works	ers or Company Results	
	Physical Proximity		
	Importance of Repeating Same		T
		o Handle, Control, or Feel Objects	, Tools, or Controls
	Structured versus Unstructured \	Work	
	Spend Time Standing		
	Exposed to Radiation		
	Spend Time Walking and Runnir		
	Spend Time Bending or Twisting		
	Responsible for Others' Health a		
	Wear Specialized Protective or S		
	Spend Time Making Repetitive N	Motions	
	Coordinate or Lead Others		
Job Zone	3		
Work Styles	Attention to Detail	Initiative	Independence
	Dependability	Stress Tolerance	Innovation
	Integrity	Adaptability/Flexibility	Analytical Thinking
	Cooperation	Persistence	Achievement/Effort
	Self Control	Social Orientation	Leadership
	Concern for Others		
Work Values	Achievement		
Work Needs	Ability Utilization		
	Security		
	Moral Values		
Madian Mana Hourly	\$22.09		
Median Wages Annual	\$45,950		
Projected Growth	Faster than average (21-35%)		

Medical and Diagnostic Labs. Customer service representatives

% Projected Employment	4.0%
Skills	Active Listening
5	Reading Comprehension
	Monitoring
	Speaking
	Time Management
	Service Orientation
	Active Learning
Abilities	Oral Comprehension
/ Williams	Oral Expression
	Deductive Reasoning
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Inductive Reasoning
	Near Vision
	Written Comprehension
Work Activities	Interacting With Computers
WOIN AUGUIGS	Getting Information
	Making Decisions and Solving Problems
	Documenting/Recording Information
	Communicating with Supervisors, Peers, or Subordinates
	Monitor Processes, Materials, or Surroundings
	Identifying Objects, Actions, and Events Processing Information
Work Context	Contact With Others
WOIN COILLEXT	
	Telephone Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Spend Time Sitting Time Pressure
	Time Pressure
	Work With Work Group or Team
	Electronic Mail
	Freedom to Make Decisions
	Deal With External Customers Fraguency of Decision Making
	Frequency of Decision Making
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Importance of Being Exact or Accurate
1.1. =	Importance of Repeating Same Tasks
Job Zone	2
Work Styles	Cooperation
	Dependability
	Attention to Detail
	Self Control
	Stress Tolerance
	Adaptability/Flexibility
	Initiative
	Concern for Others
	Independence
	Persistence
	Integrity
	Social Orientation
	Analytical Thinking
	Achievement/Effort
	Leadership
Work Values	
Work Needs	
Median Wages Hourly	\$13.22
Annual	\$27,490
Projected Growth	Faster than average (21-35%)

Medical and Diagnostic Labs. Diagnostic medical sonographers

O/ Dunington of Francis and		culcal sollographers	
% Projected Employment			
Skills	Active Listening		
	Reading Comprehension		
	Social Perceptiveness		
	Speaking		
	Critical Thinking		
	Active Learning		
	Learning Strategies		
	Instructing		
Abilities	Oral Expression		
	Problem Sensitivity		
	Oral Comprehension		
	Near Vision		
	Speech Clarity		
	Speech Recognition		
	Written Expression		
Work Activities	Assisting and Caring for Others		
	Documenting/Recording Information	ition	
	Getting Information		
	Identifying Objects, Actions, and		
	Communicating with Supervisors		
	Establishing and Maintaining Inte	erpersonal Relationships	
	Interacting With Computers		
Work Context		to Handle, Control, or Feel Objects, Tools, or Controls	
	Contact With Others		
	Importance of Being Exact or Ac		
	Exposed to Disease or Infections		
	Indoors, Environmentally Contro	lled	
	Face-to-Face Discussions		
	Physical Proximity		
	Telephone		
	Spend Time Making Repetitive N	Motions	
	Frequency of Decision Making		
	Time Pressure		
	Work With Work Group or Team		
	Structured versus Unstructured		
	Impact of Decisions on Co-work	ers or Company Results	
	Deal With External Customers		
	Freedom to Make Decisions		
	Importance of Repeating Same		
	Deal With Unpleasant or Angry I	·	
	Spend Time Bending or Twisting	,	
	Responsible for Others' Health a	and Safety	
	Level of Competition		
	Cramped Work Space, Awkward	d Positions	
	Consequence of Error		
	Spend Time Sitting		
	Sounds, Noise Levels Are Distra	cting or Uncomfortable	
Job Zone	3		
Work Styles	Attention to Detail	Cooperation	
	Integrity	Initiative	
	Concern for Others	Persistence	
	Dependability	Stress Tolerance	
	Self Control	Achievement/Effort	
	Analytical Thinking	Adaptability/Flexibility	
	Independence		
Work Values			
Work Needs	-		
Median Wages Hourly	\$26.14		
Annuai			
Projected Growth	Faster than average (21-35%)		

Medical and Diagnostic Labs. Medical assistants

Of Drainated Francisco	0.40/
% Projected Employment	
Skills	Active Listening
	Social Perceptiveness
	Speaking
	Instructing
	Reading Comprehension
	Active Learning
	Service Orientation
Abilities	Oral Comprehension
	Oral Expression
	Speech Clarity
	Near Vision
Work Activities	Assisting and Caring for Others
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Updating and Using Relevant Knowledge
	Identifying Objects, Actions, and Events
	Evaluating Information to Determine Compliance with Standards
	Establishing and Maintaining Interpersonal Relationships
	Making Decisions and Solving Problems
	Documenting/Recording Information
	Interpreting the Meaning of Information for Others
Work Context	Indoors, Environmentally Controlled
	Physical Proximity
	Contact With Others
	Telephone
	Work With Work Group or Team
	Exposed to Disease or Infections
	Importance of Being Exact or Accurate
	Deal With External Customers
	Face-to-Face Discussions
	Wear Common Protective or Safety Equipment
	Deal With Unpleasant or Angry People
	Structured versus Unstructured Work
Job Zone	3
Work Styles	Concern for Others
Train Glyloo	Integrity
	Cooperation
	Self Control
	Attention to Detail
	Dependability
	Social Orientation
Work Values	Initiative
Work Needs	Moral Values
I lovely	\$12.19
Median Wages Hourly	
Annual Projected Growth	\$25,350 Much feater than average (26+9/)
Projected Growth	Much faster than average (36+%)

Medical and Diagnostic Labs. Receptionists and information clerks

0/ Projected From	alaumant	2.70/
% Projected Emp Skills	Joyment	
SKIIIS		Active Listening
		Speaking
		Reading Comprehension
A 1 '11'4'		Writing
Abilities		Oral Comprehension
		Oral Expression
14/ / 4 / /		Speech Recognition
Work Activit	ties	Interacting With Computers
		Getting Information
		Performing Administrative Activities
Work Conte	ext	Telephone
		Contact With Others
		Face-to-Face Discussions
		Structured versus Unstructured Work
		Importance of Being Exact or Accurate
		Spend Time Sitting
		Work With Work Group or Team
		Importance of Repeating Same Tasks
		Freedom to Make Decisions
		Indoors, Environmentally Controlled
		Letters and Memos
		Deal With External Customers
Job Zone		2
Work Style	es es	Cooperation
		Dependability
		Integrity
		Stress Tolerance
		Self Control
		Attention to Detail
		Concern for Others
		Independence
		Social Orientation
		Initiative
Work Values		
Work Need	ds	
Madian Mass	Hourly	\$10.65
Median Wages	Annual	\$22,150
Projected Gr	owth	Faster than average (21-35%)

Medical and Diagnostic Labs. Medical and health services managers

Of Drainated Francisco		th services managers		
% Projected Employment		Time Management	Carial Barranti ranca	
Skills	Active Listening	Time Management	Social Perceptiveness	
	Reading Comprehension	Service Orientation	Learning Strategies	
	Critical Thinking	Active Learning	Persuasion	
	Speaking	Writing	Instructing	
	Monitoring	Coordination	Complex Problem Solving	
	Judgment and Decision Making	Management of Personnel Resou		
Abilities	Oral Comprehension	Oral Expression	Written Expression	
	Deductive Reasoning	Problem Sensitivity	Information Ordering	
	Inductive Reasoning	Written Comprehension	Speech Recognition	
Work Activities	Establishing and Maintaining Inte			
	Making Decisions and Solving P			
	Monitor Processes, Materials, or	3		
	Communicating with Supervisors	s, Peers, or Subordinates		
	Coordinating the Work and Activ	ities of Others		
	Evaluating Information to Determ	nine Compliance with Standards		
	Analyzing Data or Information			
	Monitoring and Controlling Resor			
	Resolving Conflicts and Negotiat			
	Updating and Using Relevant Kn	owledge		
	Getting Information			
	Guiding, Directing, and Motivatin	g Subordinates		
	Staffing Organizational Units			
	Organizing, Planning, and Priorit	izing Work		
	Developing and Building Teams			
	Documenting/Recording Informa	tion		
	Interacting With Computers			
	Processing Information			
	Developing Objectives and Strate	Developing Objectives and Strategies		
	Performing Administrative Activities			
	Identifying Objects, Actions, and	Events		
Work Context	Face-to-Face Discussions			
	Telephone			
	Contact With Others			
	Structured versus Unstructured \	Vork		
	Frequency of Decision Making			
	Indoors, Environmentally Control	led		
	Coordinate or Lead Others			
	Freedom to Make Decisions			
	Work With Work Group or Team			
	Impact of Decisions on Co-workers or Company Results			
	Importance of Being Exact or Accurate			
	Letters and Memos			
	Responsibility for Outcomes and	Results		
	Time Pressure			
	Deal With External Customers			
	Deal With Unpleasant or Angry F	People		
	Exposed to Disease or Infections	S		
Job Zone	5			
Work Styles	Attention to Detail	Concern for Others	Persistence	
	Leadership	Self Control	Stress Tolerance	
	Dependability	Independence	Achievement/Effort	
	Integrity	Social Orientation	Innovation	
	Adaptability/Flexibility	Initiative	Analytical Thinking	
	Cooperation		-	
Work Values	Independence			
Work Needs	Security	Autonomy		
	Working Conditions	Responsibility		
	Authority	1 9		
Hourly	\$33.51			
Median Wages Annual	\$69,700			
Projected Growth	Faster than average (21-35%)			

Medical and Diagnostic Labs. Physicians and surgeons

% Projected Employ	ment 1.4%		
Skills			
Abilities			
Work Activities			
Work Context			
Job Zone			
Work Styles	Work Styles		
Work Values	Work Values		
Work Needs			
Median Wages H	Modion Wagas Hourly		
- Annual			
Projected Growt	th		

Medical and Diagnostic Labs. Office clerks, general

% Projected Employment 2.5%	
Skills	Active Listening
	Reading Comprehension
Abilities	Oral Comprehension
	Oral Expression
Work Activities	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
	Contact With Others
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Spend Time Sitting
	Importance of Repeating Same Tasks
	Indoors, Environmentally Controlled
	Structured versus Unstructured Work
	Electronic Mail
	Work With Work Group or Team
	Deal With External Customers
	Freedom to Make Decisions
Job Zone	2
Work Styles	Cooperation
	Dependability
	Integrity
	Attention to Detail
	Concern for Others
	Independence
	Self Control
	Stress Tolerance
	Initiative
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$11.09
Annuai	\$23,070
Projected Growth	Slower than average (0-9%)

Medical and Diagnostic Labs. Medical transcriptionists

% Projected Employment	1.3%
Skills	Active Listening
C.uno	Reading Comprehension
Abilities	Oral Comprehension
,	Written Comprehension
Work Activities	Documenting/Recording Information
	Interacting With Computers
	Updating and Using Relevant Knowledge
	Updating and Using Relevant Knowledge
	Getting Information
	Identifying Objects, Actions, and Events
	Communicating with Supervisors, Peers, or Subordinates
	Processing Information
Work Context	Importance of Being Exact or Accurate
	Importance of Repeating Same Tasks
	Spend Time Sitting
	Spend Time Making Repetitive Motions
	Telephone
	Time Pressure
	Electronic Mail
	Impact of Decisions on Co-workers or Company Results
	Indoors, Environmentally Controlled
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Letters and Memos
	Freedom to Make Decisions
Job Zone	3
Work Styles	Attention to Detail
	Dependability
	Integrity
	Independence
	Cooperation
	Achievement/Effort
	Initiative
	Persistence
	Adaptability/Flexibility
	Stress Tolerance
14/ / 1/	Concern for Others
Work Values	
Work Needs	***
Median Wages Hourly	\$13.98
Annuai	\$29,080
Projected Growth	Faster than average (21-35%)

Medical and Diagnostic Labs.

First-line supervisors/managers of office and administrative support workers

	<u>. </u>	office and administrative su	pport workers
% Projected Employment Skills		Time Management	
SKIIIS	Active Listening	Time Management	roop
	Speaking	Management of Personnel Resou Judgment and Decision Making	ices
	Reading Comprehension Critical Thinking	Instructing	
	Monitoring	Social Perceptiveness	
Abilities	Oral Expression	Written Comprehension	
Abilities	Oral Comprehension	Speech Clarity	
	Written Expression	Number Facility	
	Near Vision	Number raciity	
Work Activities	Getting Information		
Violition	Communicating with Supervisors	Peers or Subordinates	
	Establishing and Maintaining Inte		
	Interacting With Computers	orporoonal Rolationompo	
	Guiding, Directing, and Motivatin	a Subordinates	
	Making Decisions and Solving Pr		
	Organizing, Planning, and Priorit		
	Developing and Building Teams	g	
	Communicating with Persons Ou	itside Organization	
	Identifying Objects, Actions, and	=	
	Coordinating the Work and Activ		
	Coaching and Developing Others		
	Processing Information		
	Evaluating Information to Determine Compliance with Standards		
	Updating and Using Relevant Kn		
	Resolving Conflicts and Negotiat		
	Performing Administrative Activit	ies	
	Scheduling Work and Activities		
Work Context	Telephone		
	Electronic Mail		
	Face-to-Face Discussions		
	Contact With Others		
	Work With Work Group or Team		
	Structured versus Unstructured \		
	Responsibility for Outcomes and	Results	
	Deal With External Customers		
	Freedom to Make Decisions		
	Importance of Being Exact or Ac		
	Indoors, Environmentally Control	lled	
	Frequency of Decision Making		
	Time Pressure		
	Spend Time Sitting		
	Duration of Typical Work Week		
	Coordinate or Lead Others Letters and Memos		
		Fooko	
	Importance of Repeating Same Impact of Decisions on Co-worke		
Job Zone	3	ers or Company Results	
Work Styles	Integrity	Initiative	Adaptability/Flexibility
Work Olylos	Dependability	Concern for Others	Persistence
	Attention to Detail	Leadership	Analytical Thinking
	Cooperation	Self Control	Achievement/Effort
	Stress Tolerance	Independence	
Work Values	Independence	-1	
	Achievement		
Work Needs	Authority	Working Conditions	
	Autonomy	Responsibility	
	Activity	Achievement	
Madian Wagaa Hourly	\$20.38		
Median Wages Annual	\$42,400		
Projected Growth	Slower than average (0-9%)		

Medical and Diagnostic Labs. Sales representatives, services, all other

% Projected Emp	oloyment	1.2%	
Skills	Skills		
Abilities			
Work Activi	ties		
Work Cont	Work Context		
Job Zone	Job Zone		
Work Style	Work Styles		
Work Valu	Work Values		
Work Nee	Work Needs		
Median Wages	Hourly	\$22.50	
Wedian wages	Annual	\$46,790	
Projected Gr	owth	Average (10-20%)	

Medical and Diagnostic Labs. General and operations managers

	General and operations managers
% Projected Employment	
Skills	Active Listening
	Management of Personnel Resources
	Time Management
	Monitoring
	Reading Comprehension
	Judgment and Decision Making
	Speaking Management of Figure 11 Bases and 12 Bases and 1
	Management of Financial Resources
	Persuasion
	Active Learning
Abilities	Oral Expression
	Oral Comprehension
	Problem Sensitivity
	Speech Recognition
	Written Comprehension
	Speech Clarity
	Inductive Reasoning
	Deductive Reasoning
Work Activities	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
WOIN COINEAL	Duration of Typical Work Week
	Work With Work Group or Team
	Face-to-Face Discussions
	Frequency of Decision Making
	Contact With Others
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Structured versus Unstructured Work
	Coordinate or Lead Others
	Time Pressure
	Electronic Mail
	Responsible for Others' Health and Safety
	Deal With Unpleasant or Angry People
	Letters and Memos
Job Zone	4
Work Styles	Dependability
	Leadership
	Integrity
	Attention to Detail
	Initiative
	Self Control
	Cooperation
	Concern for Others
	Independence
	Analytical Thinking
	Stress Tolerance
	Social Orientation
	Adaptability/Flexibility
	Innovation
	Persistence
	Achievement/Effort
Work Values	
Work Needs	
Median Wages Hourly	\$39.17
Annuai	\$81,480
Projected Growth	Average (10-20%)

Medical and Diagnostic Labs. Medical secretaries

% Projected Employment	2.3%
Skills	Active Listening
	Reading Comprehension
	Speaking
	Coordination
Abilities	Oral Comprehension
	Oral Expression
	Speech Clarity
	Near Vision
	Information Ordering
Work Activities	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Communicating with Persons Outside Organization
	Interacting With Computers
	Establishing and Maintaining Interpersonal Relationships
	Assisting and Caring for Others
	Documenting/Recording Information
	Organizing, Planning, and Prioritizing Work
	Performing Administrative Activities
Work Context	Telephone
	Contact With Others
	Face-to-Face Discussions
	Work With Work Group or Team
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Structured versus Unstructured Work
	Importance of Being Exact or Accurate
	Frequency of Decision Making
Job Zone	2
Work Styles	Cooperation
	Dependability
	Attention to Detail
	Self Control
	Stress Tolerance
	Adaptability/Flexibility
	Integrity
	Independence
	Concern for Others
	Initiative
	Social Orientation
	Achievement/Effort
Work Values	
Work Needs	Working Conditions
	Activity
Adadian Mana Hourly	\$13.13
Median Wages Annual	\$27,320
Projected Growth	Average (10-20%)
· · · · · · · · · · · · · · · · · · ·	

Medical and Diagnostic Labs. Truck drivers, light or delivery services

% Projected Employment	1.0%
Skills	,
Abilities	
Work Activities	Operating Vehicles, Mechanized Devices, or Equipment Getting Information Handling and Moving Objects Performing for or Working Directly with the Public
	Performing General Physical Activities Communicating with Supervisors, Peers, or Subordinates
Work Context	Outdoors, Exposed to Weather Contact With Others In an Enclosed Vehicle or Equipment Time Pressure Telephone Face-to-Face Discussions Deal With External Customers Importance of Being Exact or Accurate Duration of Typical Work Week Physical Proximity Responsible for Others' Health and Safety Exposed to Contaminants Work With Work Group or Team Very Hot or Cold Temperatures Freedom to Make Decisions Outdoors, Under Cover Wear Common Protective or Safety Equipment Letters and Memos
Job Zone	2
Work Styles	Integrity Dependability Independence Attention to Detail
Work Values	
Work Needs	Independence
Median Wages Hourly Annual	\$11.92 \$24,790
Projected Growth	Average (10-20%)

Medical and Diagnostic Labs. Medical scientists, except epidemiologists

[a, b : , , = ;		except epidemiologists	
% Projected Employment			0 1:
Skills	Reading Comprehension	Instructing	Speaking
	Science	Time Management	Monitoring
	Active Listening	Critical Thinking	Learning Strategies
	Active Learning	Judgment and Decision Making	Coordination
	Writing	Complex Problem Solving	
Abilities	Oral Comprehension	Problem Sensitivity	
	Inductive Reasoning	Written Expression	
	Written Comprehension	Near Vision	
	Oral Expression	Speech Clarity	
	Deductive Reasoning	_	
Work Activities	Getting Information		
	Processing Information		
	Making Decisions and Solving P		
	Updating and Using Relevant Kn	owledge	
	Interacting With Computers		
	Documenting/Recording Informa	ition	
	Analyzing Data or Information		
	Identifying Objects, Actions, and		
	Evaluating Information to Determ	The state of the s	
	Interpreting the Meaning of Infor		
	Communicating with Persons Ou		
	Communicating with Supervisors		
	Judging the Qualities of Things,		
	Organizing, Planning, and Priorit	_	
	Establishing and Maintaining Inte	·	
	Monitor Processes, Materials, or		
Work Context	Indoors, Environmentally Control	lled	
	Face-to-Face Discussions		
	Telephone		
	Duration of Typical Work Week		
	Electronic Mail		
	Work With Work Group or Team		
	Freedom to Make Decisions		
	Responsibility for Outcomes and		
	Structured versus Unstructured \	Work	
	Coordinate or Lead Others		
	Importance of Being Exact or Ac	curate	
	Contact With Others		
	Responsible for Others' Health a	ind Safety	
	Letters and Memos		
	Deal With External Customers		
Job Zone	5		
Work Styles	Integrity	Initiative	Innovation
	Persistence	Stress Tolerance	Adaptability/Flexibility
	Attention to Detail	Cooperation	Leadership
	Analytical Thinking	Dependability	Independence
147. 7.37.7	Achievement/Effort	Self Control	Social Orientation
Work Values	Achievement		
	Independence		
	Working Conditions		
Manta Na cata	Recognition	Commonative	
Work Needs	Achievement	Compensation	
	Social Status	Activity	
	Ability Utilization	Working Conditions	
	Security	Recognition	
	Responsibility	Creativity	
	Autonomy	Variety	
. المراسلا	\$29.68		
Median Wages Hourly			
Median Wages Annual Projected Growth	\$61,730 Faster than average (21-35%)		

Medical and Diagnostic Labs. Medical records and health information technicians

0/ Paris de 15	medical records and nearth information technicians
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Time Management
	Speaking
	Writing
Abilities	Oral Comprehension
	Written Comprehension
	Information Ordering
	Oral Expression
Work Activities	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Performing Administrative Activities
	Updating and Using Relevant Knowledge
	Evaluating Information to Determine Compliance with Standards
	Documenting/Recording Information
	Establishing and Maintaining Interpersonal Relationships
	Handling and Moving Objects
Work Context	Telephone
	Face-to-Face Discussions
	Contact With Others
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Letters and Memos
	Importance of Repeating Same Tasks
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Physical Proximity
	Work With Work Group or Team
	Spend Time Sitting
	Frequency of Decision Making
Job Zone	3
Work Styles	Cooperation
	Stress Tolerance
	Integrity
	Dependability
	Attention to Detail
	Concern for Others
	Independence
	Adaptability/Flexibility
	Self Control
	Initiative
	Persistence
	Innovation
	Achievement/Effort
	Analytical Thinking
	Social Orientation
Work Values	gram grammen
Work Needs	Moral Values
770.1110000	Working Conditions
Hourly	\$12.83
Median Wages Annual	\$26,690
Projected Growth	
Frojecied Growin	Faster than average (21-35%)

Medical and Diagnostic Labs. Registered nurses

% Projected Employment		<u> </u>	
Skills	Active Listening	Time Management	Active Learning
	Reading Comprehension	Service Orientation	Coordination
	Critical Thinking	Social Perceptiveness	Monitoring
	Instructing	Judgment and Decision Making	Learning Strategies
	Speaking	Writing	Science
Abilities	Problem Sensitivity	vviitiig	Science
Abilities			
	Oral Camprahagaian		
	Oral Comprehension		
	Inductive Reasoning		
	Speech Recognition		
	Deductive Reasoning		
	Speech Clarity		
	Written Expression		
Monte Activities	Written Comprehension		
Work Activities	Assisting and Caring for Others	41	
	Documenting/Recording Informa	ition	
	Getting Information		
	Updating and Using Relevant Kr	<u> </u>	
	Organizing, Planning, and Priori		
	Identifying Objects, Actions, and		
	Making Decisions and Solving P		
	Performing for or Working Direct		
	Communicating with Supervisors		
	Establishing and Maintaining International	•	
	Monitor Processes, Materials, or	=	
11/ 1 0	Interpreting the Meaning of Infor	mation for Others	
Work Context	Telephone		
	Contact With Others		
	Face-to-Face Discussions		
	Exposed to Disease or Infections	S	
	Physical Proximity		
	Work With Work Group or Team		
	Importance of Being Exact or Ac	curate	
	Frequency of Decision Making		
	Indoors, Environmentally Contro		
	Impact of Decisions on Co-work	ers or Company Results	
	Consequence of Error		
	Wear Common Protective or Saf	fety Equipment	
	Deal With External Customers		
	Freedom to Make Decisions		
	Structured versus Unstructured	Work	
	Time Pressure		
	Deal With Unpleasant or Angry I	People	
	Coordinate or Lead Others		
	Responsible for Others' Health a	and Safety	
Job Zone	3		
Work Styles	Integrity	Adaptability/Flexibility	Analytical Thinking
	Dependability	Stress Tolerance	Achievement/Effort
	Self Control	Initiative	Leadership
	Concern for Others	Independence	Persistence
	Cooperation	Social Orientation	Innovation
	Attention to Detail		
Work Values	Achievement		
	Relationships		
Work Needs	Social Service	Achievement	
	Co-workers	Activity	
	Ability Utilization	Security	
Modian Wagos Hourly	\$26.28		
Median Wages Annual	\$54,670		
Projected Growth	Faster than average (21-35%)		
·	5 (

Medical and Diagnostic Labs. Health diagnosing and treating practitioners, all other

% Projected Em	oloyment	0.9%
Skills		
Abilities	1	
Work Activi	ities	
Work Cont	ext	
Job Zon	е	
Work Styl	es	
Work Valu	ies	
Work Nee	ds	
Median Wages Hourly \$27.64		
wedian wages	Annual \$57,480	
Projected Gr	rowth	Faster than average (21-35%)

Medical and Diagnostic Labs. Bill and account collectors

Of Drainated Francisco	4 00/
% Projected Employment	
Skills	Active Listening
	Speaking
	Reading Comprehension
	Time Management
	Mathematics
Abilities	Oral Expression
	Oral Comprehension
	Speech Clarity
Work Activities	Interacting With Computers
	Getting Information
	Processing Information
	Making Decisions and Solving Problems
	Evaluating Information to Determine Compliance with Standards
	Organizing, Planning, and Prioritizing Work
	Documenting/Recording Information
Work Contact	Communicating with Persons Outside Organization
Work Context	Telephone
	Contact With Others
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Importance of Repeating Same Tasks
	Frequency of Decision Making
	Spend Time Sitting
	Deal With Unpleasant or Angry People
	Deal With External Customers
	Time Pressure
	Work With Work Group or Team
	Letters and Memos
	Spend Time Making Repetitive Motions
	Impact of Decisions on Co-workers or Company Results
	Face-to-Face Discussions
	Frequency of Conflict Situations
	Freedom to Make Decisions
Job Zone	Structured versus Unstructured Work 3
Work Styles	•
work Styles	Attention to Detail
	Integrity
	Dependability
	Self Control
	Independence
	Cooperation
	Stress Tolerance
	Adaptability/Flexibility
	Persistence
	Initiative
	Concern for Others
	Achievement/Effort
Work Values	
Work Needs	
Hourly	\$13.54
Median Wages Annual	\$28,160
Projected Growth	Faster than average (21-35%)
i rojecteu Growtii	1 43(c) than 4 voiage (21-0070)

Medical and Diagnostic Labs. Executive secretaries and administrative assistants

\$\frac{\text{Skills}}{\text{Skills}}\$ Active Listening Reading Comprehension Time Management Speaking Oral Comprehension Written Comprehension Written Expression Oral Expression Oral Expression Speech Clarity Near Vision Work Activities	0/ 0 - 1 - 1 - 1	LACULTY Secretaries and administrative assistants
Reading Comprehension Time Management Spaaking Abilities Oral Comprehension Written Comprehension Written Expression Oral Expression Speech Clarity Near Vision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting Recording Information Identifying Objects, Actions, and Events Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mall Latters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Stitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concorn for Others Self Control Adaptability/Flexibility Stress Tolerance Independence		
Time Management Speaking Abilities Oral Comprehension Written Comprehension Written Expression Oral Expression Speech Clarity Near Vision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Being Exact structured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Working Conditions Company Policies and Practices Median Wages Median Wa	Skills	
Abilities Oral Comprehension Written Comprehension Written Expression Speech Clarity New Yision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpressonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Teem Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Natues Working Conditions Company Policies and Practices Median Wages Median W		
Abilities Oral Comprehension Written Comprehension Written Comprehension Written Comprehension Written Comprehension Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressura Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Needs Working Conditions Company Policies and Practices Median Wages Medi		
Written Expression Written Expression Oral Expression Speech Clarity Near Vision Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Oustomers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Meeds Working Conditions Company Policies and Practices Median Wages		
Written Expression Oral Expression Speech Clarity Near Vision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Work Context Work Context Itelephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Needs Working Conditions Company Policies and Practices Median Wages Me	Abilities	
Oral Expression Speech Clarity Near Vision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting Recording Information Incommunicating with Persons Outside Organization Documenting Recording Information Intelligence I		
Speech Clarity Near Vision Work Activities Performing Administrative Activities Interacting With Computers Getting Information Communicating with Supervisors, Peers, or Subordinates Organizing, Planning, and Prioritizing Work Establishing and Maintaining Interpersonal Relationships Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Nalues Work Needs Working Conditions Company Policies and Practices Median Wages		Written Expression
Near Vision		Oral Expression
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Communicating with Persons Outside Organization Documenting/Recording Information Identifying Objects, Actions, and Events Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Needs Working Conditions Company Policies and Practices Median Wages Hourly \$17.29 Annual \$35,960		Organizing, Planning, and Prioritizing Work
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Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Needs Working Conditions Company Policies and Practices Median Wages Hourly \$17.29 Annual \$35,960		Documenting/Recording Information
Work Context Telephone Contact With Others Face-to-Face Discussions Electronic Mail Letters and Memos Importance of Being Exact or Accurate Work With Work Group or Team Structured versus Unstructured Work Importance of Repeating Same Tasks Spend Time Sitting Freedom to Make Decisions Deal With External Customers Coordinate or Lead Others Indoors, Environmentally Controlled Time Pressure Job Zone 3 Work Styles Cooperation Attention to Detail Dependability Integrity Concern for Others Self Control Adaptability/Flexibility Stress Tolerance Independence Initiative Social Orientation Innovation Achievement/Effort Persistence Work Values Work Needs Working Conditions Company Policies and Practices Median Wages Hourly \$17.29 Annual \$35,960		
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Company Policies and Practices Median Wages Hourly \$17.29 Annual \$35,960		W. U. O. W.
Median Wages Hourly \$17.29 Annual \$35,960	Work Needs	
Annual \$35,960		
Arinuar \$35,960		
Projected Growth Average (10-20%)	Annuai	
	Projected Growth	Average (10-20%)

Medical and Diagnostic Labs. Bookkeeping, accounting, and auditing clerks

% Projected Employment	1.3%
Skills	Mathematics
	Reading Comprehension
	Time Management
	Active Listening
Abilities	Near Vision
	Mathematical Reasoning
	Problem Sensitivity
Work Activities	Interacting With Computers
	Getting Information
	Processing Information
	Establishing and Maintaining Interpersonal Relationships
	Organizing, Planning, and Prioritizing Work
Work Context	Telephone
	Electronic Mail
	Importance of Being Exact or Accurate
	Importance of Repeating Same Tasks
	Face-to-Face Discussions
	Contact With Others
	Spend Time Sitting
	Structured versus Unstructured Work
	Time Pressure
	Freedom to Make Decisions
	Duration of Typical Work Week
	Work With Work Group or Team
	Frequency of Decision Making
Job Zone	3
Work Styles	Attention to Detail
	Integrity
	Dependability
	Cooperation
	Independence
	Self Control
	Initiative
	Persistence
	Stress Tolerance
	Adaptability/Flexibility
	Concern for Others
Work Values	
Work Needs	Working Conditions
	Independence
Median Wages Hourly	\$14.18
Annuai	\$29,490
Projected Growth	Slower than average (0-9%)

Medical and Diagnostic Labs. Healthcare practitioners and technical workers, all other

% Projected Emp	oloyment	0.6%
Skills		
Abilities		
Work Activit	ies	
Work Conte	ext	
Job Zone)	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages -	Hourly	\$16.12
Wedian Wages	Annual	\$33,520
Projected Growth Faster than average (21-35%)		

Medical and Diagnostic Labs. Medical equipment preparers

% Projected Employment	
Skills	Operation Monitoring
	Active Listening
	Instructing
	Reading Comprehension
	Speaking
Abilities	
Work Activities	Inspecting Equipment, Structures, or Material
	Monitor Processes, Materials, or Surroundings
	Handling and Moving Objects
	Updating and Using Relevant Knowledge
Work Context	Indoors, Environmentally Controlled
	Exposed to Disease or Infections
	Importance of Being Exact or Accurate
	Contact With Others
	Face-to-Face Discussions
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Wear Common Protective or Safety Equipment
	Spend Time Standing
	Telephone
	Work With Work Group or Team
	Physical Proximity
	Structured versus Unstructured Work
	Freedom to Make Decisions
	Exposed to Contaminants
Job Zone	2
Work Styles	Attention to Detail
	Cooperation
	Dependability
	Integrity
	Stress Tolerance
	Independence
	Achievement/Effort
	Self Control
	Concern for Others
	Initiative
	Adaptability/Flexibility
	Social Orientation
	Leadership
Work Values	•
Work Needs	Moral Values
	Independence
Madian Wagaa Hourly	\$11.96
Median Wages Annual	\$24,880
Projected Growth	Average (10-20%)
.,	

Medical and Diagnostic Labs. Accountants and auditors

% Projected Employment	0.6%		
Skills	Mathematics	Time Management	
	Active Listening	Active Learning	
	Critical Thinking	Reading Comprehension	
	Monitoring	Writing	
	Judgment and Decision Making	•	
Abilities	Problem Sensitivity	Mathematical Reasoning	Problem Sensitivity
	Deductive Reasoning	Written Comprehension	Number Facility
	Information Ordering	Inductive Reasoning	Speech Clarity
	Oral Expression	Near Vision	Speech Recognition
	Written Expression	Oral Comprehension	Information Ordering
Work Activities	Interacting With Computers	•	3
	Analyzing Data or Information		
	Processing Information		
	Getting Information		
	Documenting/Recording Information	tion	
	Establishing and Maintaining Inte		
	Organizing, Planning, and Priorit		
	Communicating with Supervisors		
	Making Decisions and Solving Pr		
	Interpreting the Meaning of Inform		
	Evaluating Information to Determ		
	Identifying Objects, Actions, and		
	Monitor Processes, Materials, or		
	Judging the Qualities of Things,		
	Updating and Using Relevant Kn	•	
Work Context	Telephone		
	Electronic Mail		
	Indoors, Environmentally Control	lled	
	Face-to-Face Discussions		
	Structured versus Unstructured V	Vork	
	Spend Time Sitting		
	Freedom to Make Decisions		
	Importance of Being Exact or Accurate		
	Work With Work Group or Team		
	Letters and Memos		
	Contact With Others		
	Frequency of Decision Making		
	Time Pressure		
	Impact of Decisions on Co-workers or Company Results		
	Duration of Typical Work Week	. ,	
	Importance of Repeating Same 7	Гasks	
	Consequence of Error		
Job Zone	4		
Work Styles	Attention to Detail	Adaptability/Flexibility	
	Dependability	Independence	
	Integrity	Self Control	
	Analytical Thinking	Persistence	
	Stress Tolerance	Concern for Others	
	Cooperation	Initiative	
	Achievement/Effort	Leadership	
Work Values	Working Conditions		
Work Needs	Working Conditions		
	Security		
	Compensation		
	Activity		
	Ability Utilization		
	Social Status		
Median Wages Hourly	\$25.10		-
Annuai	\$52,210		
Projected Growth	Faster than average (21-35%)		
	·		

Medical and Diagnostic Labs. Business operation specialists, all other

% Projected Emp	oloyment	0.4%
Skills		
Abilities		
Work Activi	ties	
Work Cont	ext	
Job Zone	Э	
Work Style	es	
Work Valu	es	
Work Nee	ds	
Median Wages	Hourly	\$26.22
	Annual	\$54,550
Projected Gr	owth	Faster than average (21-35%)

Medical and Diagnostic Labs. Computer support specialists

% Projected Employment	0.5%
Skills	Troubleshooting
SKIIIS	· · · · · · · · · · · · · · · · · · ·
	Reading Comprehension
	Critical Thinking
	Active Listening
	Writing
	Speaking
	Learning Strategies
	Active Learning
Abilities	Inductive Reasoning
	Oral Expression
	Written Comprehension
	Oral Comprehension
	Deductive Reasoning
	Problem Sensitivity
	Speech Recognition
	Information Ordering
	Speech Clarity
Morte Activities	Near Vision
Work Activities	Interacting With Computers
	Getting Information
	Updating and Using Relevant Knowledge
	Making Decisions and Solving Problems
	Communicating with Persons Outside Organization
	Communicating with Supervisors, Peers, or Subordinates
	Establishing and Maintaining Interpersonal Relationships
	Identifying Objects, Actions, and Events
	Interpreting the Meaning of Information for Others
	Documenting/Recording Information
Work Context	Face-to-Face Discussions
Trom Comen	Indoors, Environmentally Controlled
	Telephone
	Contact With Others
	Electronic Mail
	Structured versus Unstructured Work
Job Zone	3
Work Styles	Attention to Detail
	Analytical Thinking
	Dependability
	Adaptability/Flexibility
	Cooperation
	Independence
	Integrity
	Persistence
	Initiative
	Concern for Others
	Stress Tolerance
	Innovation
	Self Control
	Leadership
	Achievement/Effort
	Social Orientation
Work Values	
Work Needs	Autonomy
	Working Conditions
	Security
	Company Policies and Practices
Madian Wagaa Hourly	\$19.52
Median Wages Annual	
Projected Growth	Faster than average (21-35%)
	. 30:0 arorago (£1 00/0)

Medical and Diagnostic Labs. Computer software engineers, applications

% Projected Employment	0.3%
Skills	Programming
OKIII3	Critical Thinking
	Complex Problem Solving
	Troubleshooting
	Active Learning
	<u> </u>
	Technology Design
	Judgment and Decision Making
	Reading Comprehension
	Operations Analysis
	Systems Analysis
	Quality Control Analysis
	Active Listening
	Speaking
	Time Management
	Coordination
Abilities	Oral Comprehension
	Deductive Reasoning
	Near Vision
	Inductive Reasoning
	Problem Sensitivity
	Speech Clarity
	Written Comprehension
Work Activities	Interacting With Computers
	Updating and Using Relevant Knowledge
	Getting Information
	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Thinking Creatively
	Identifying Objects, Actions, and Events
	Analyzing Data or Information
	Processing Information
Work Context	Face-to-Face Discussions
Work Context	Electronic Mail
	Spend Time Sitting
	Work With Work Group or Team
	Indoors, Environmentally Controlled Freedom to Make Decisions
	Importance of Being Exact or Accurate
loh 7	Coordinate or Lead Others
Job Zone	4 Analytical Thinking
Work Styles	Analytical Thinking
	Attention to Detail
	Cooperation
	Dependability
	Achievement/Effort
	Innovation
	Persistence
	Adaptability/Flexibility
	Initiative
Work Values	Achievement
	Independence
Work Needs	Ability Utilization Autonomy
	Working Conditions Achievement
	Responsibility Activity
	Creativity Security
	Social Status
Madian Wagas Hourly	\$37.06
Median Wages Annual	
Projected Growth	Much faster than average (36+%)
. rojectou Growth	machinacter than avoided (00170)

Management analysts

Of Dunington of Francisco	40.00/	.ge	
% Projected Employment			
Skills	Critical Thinking	Quality Control Analysis	Operations Analysis
	Judgment and Decision Making	Reading Comprehension	Service Orientation
	Coordination	Operation and Control	Systems Evaluation
	Time Management	Learning Strategies	Installation
	Active Listening	Writing	Systems Analysis
	S	9	•
	Monitoring	Troubleshooting	Active Learning
	Instructing	Mathematics	
Abilities	Oral Comprehension	Written Expression	
	Oral Expression	Deductive Reasoning	
	Written Comprehension	Problem Sensitivity	
		1 Toblem Conditivity	
Morte Activities	Inductive Reasoning		
Work Activities	Getting Information		
	Communicating with Supervisors	s, Peers, or Subordinates	
	Establishing and Maintaining Inte	erpersonal Relationships	
	Analyzing Data or Information		
	Organizing, Planning, and Priorit	tizina Work	
	Evaluating Information to Determ		
	=	line Compliance with Standards	
	Processing Information		
	Documenting/Recording Informa		
	Updating and Using Relevant Kr	nowledge	
	Making Decisions and Solving P		
	Communicating with Persons Ou		
		•	
	Developing Objectives and Strat		
	Resolving Conflicts and Negotiat	_	
	Interpreting the Meaning of Infor	mation for Others	
	Interacting With Computers		
	Judging the Qualities of Things,	Services or People	
	Monitor Processes, Materials, or		
		=	
	v	racteristics of Products, Events, or	Information
Work Context	Telephone		
	Electronic Mail		
	Face-to-Face Discussions		
		lled	
	Indoors, Environmentally Controlled		
	Contact With Others		
	Structured versus Unstructured \	Work	
	Freedom to Make Decisions		
	Work With Work Group or Team		
	Impact of Decisions on Co-worke		
	Duration of Typical Work Week	ore or company recome	
	- ·		
	Spend Time Sitting		
	Letters and Memos		
	Coordinate or Lead Others		
Job Zone	4		
Work Styles	Dependability	Analytical Thinking	
	Adaptability/Flexibility	Initiative	
	Cooperation	Attention to Detail	
	Stress Tolerance	Achievement/Effort	
	Integrity	Self Control	
	Concern for Others	Independence	
	Leadership	Social Orientation	
	Persistence	Innovation	
14/0 4/1 1/2 1/2 2		mnovation	
Work Values	Achievement		
	Independence		
Work Needs	Creativity	Compensation	
	Achievement	Ability Utilization	
	Working Conditions	Social Status	
	<u> </u>	Jodiai Jiaius	
	Autonomy		
Median Wages Hourly	\$31.91		
Annual	\$66,380		<u> </u>
Projected Growth	Average (10-20%)		

Customer service representatives

	Odstollici scrvice representatives
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Monitoring
	Speaking
	Time Management
	Service Orientation
	Active Learning
Abilities	Oral Comprehension
Abilities	Oral Expression
	Deductive Reasoning
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Inductive Reasoning
	Near Vision
	Written Comprehension
Work Activities	Interacting With Computers
	Getting Information
	Making Decisions and Solving Problems
	Documenting/Recording Information
	Communicating with Supervisors, Peers, or Subordinates
	Monitor Processes, Materials, or Surroundings
	Identifying Objects, Actions, and Events
	Processing Information
Work Context	Contact With Others
Work Cornext	Telephone
	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Spend Time Sitting
	Time Pressure
	Work With Work Group or Team
	Electronic Mail
	Freedom to Make Decisions
	Deal With External Customers
	Frequency of Decision Making
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Importance of Being Exact or Accurate
	Importance of Repeating Same Tasks
Job Zone	2
Work Styles	Cooperation
Well styles	Dependability
	Attention to Detail
	Self Control
	Stress Tolerance
	Adaptability/Flexibility
	Initiative
	Concern for Others
	Independence
	Persistence
	Integrity
	Social Orientation
	Analytical Thinking
	Achievement/Effort
	Leadership
Work Values	
Work Needs	
Hourh	\$13.22
Median Wages Annual	\$27,490
Projected Growth	Faster than average (21-35%)
. rojootoa Growar	1 40.00. Main 470.1490 (2.1 00.70)

General and operations managers

% Projected Employment	3.7%
Skills	Active Listening
Skills	
	Management of Personnel Resources
	Time Management
	Judgment and Decision Making
	Monitoring
	Reading Comprehension
	Speaking
	Management of Financial Resources
	Active Listening
	Persuasion
Abilities	Oral Expression
7 10	Oral Comprehension
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Written Comprehension
	Deductive Reasoning
	Inductive Reasoning
Work Activities	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
	Duration of Typical Work Week
	Work With Work Group or Team
	Face-to-Face Discussions
	Contact With Others
	Frequency of Decision Making
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Structured versus Unstructured Work
	Coordinate or Lead Others
	Time Pressure
	Electronic Mail
	Responsible for Others' Health and Safety
	Deal With Unpleasant of Angry People
	Letters and Memos
Job Zone	
	4 Page and a billion
Work Styles	Dependability
	Leadership
	Integrity
	Attention to Detail
	Initiative
	Self Control
	Cooperation
	Concern for Others
	Analytical Thinking
	Independence
	Stress Tolerance
	Social Orientation
1	
	Adaptability/Flexibility
1	Innovation
1	Persistence
	Achievement/Effort
Work Values	
Work Needs	
Median Wages Hourly	\$39.17
Annual	\$81,480
Projected Growth	Average (10-20%)

Management, Technical and Scientific Consulting Office clerks, general

	, 0		
% Projected Employment			
Skills	Active Listening		
	Reading Comprehension		
Abilities	Oral Comprehension		
	Oral Expression		
Work Activities	Interacting With Computers		
	Getting Information		
	Communicating with Supervisors, Peers, or Subordinates		
Work Context	Telephone		
	Contact With Others		
	Face-to-Face Discussions		
	Importance of Being Exact or Accurate		
	Spend Time Sitting		
	Importance of Repeating Same Tasks		
	Indoors, Environmentally Controlled		
	Structured versus Unstructured Work		
	Electronic Mail		
	Work With Work Group or Team		
Deal With External Customers			
	Freedom to Make Decisions		
Job Zone	2		
Work Styles	Cooperation		
	Dependability		
	Integrity		
	Attention to Detail		
	Concern for Others		
	Independence		
	Self Control		
	Stress Tolerance		
	Initiative		
Work Values			
Work Needs	Moral Values		
Median Wages Hourly	\$11.09		
Annual	\$23,070		
Projected Growth	Slower than average (0-9%)		

Business operation specialists, all other

% Projected Emplo	ment 2.7%
Skills	
Abilities	
Work Activitie	
Work Contex	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages	ourly \$26.22
	nnual \$54,550
Projected Grou	th Faster than average (21-35%)

Executive secretaries and administrative assistants

0/ Projected Employment	2.50/
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Time Management
	Speaking
Abilities	Oral Comprehension
	Written Comprehension
	Written Expression
	Oral Expression
	Speech Clarity
	Near Vision
Work Activities	Performing Administrative Activities
	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Organizing, Planning, and Prioritizing Work
	Establishing and Maintaining Interpersonal Relationships
	Communicating with Persons Outside Organization
	Documenting/Recording Information
Work Context	Identifying Objects, Actions, and Events
Work Context	Telephone
	Contact With Others
	Face-to-Face Discussions
	Electronic Mail
	Letters and Memos
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Structured versus Unstructured Work
	Importance of Repeating Same Tasks
	Spend Time Sitting
	Freedom to Make Decisions
	Deal With External Customers
	Coordinate or Lead Others
	Indoors, Environmentally Controlled
	Time Pressure
Job Zone	3
Work Styles	Cooperation Attacking to Datail
	Attention to Detail
	Dependability
	Integrity
	Concern for Others
	Self Control
	Adaptability/Flexibility
	Stress Tolerance
	Independence
	Initiative
	Social Orientation
	Innovation
	Achievement/Effort
	Persistence
Work Values	. 5.5.5.5.5.5
Work Needs	Working Conditions
Work Woods	Company Policies and Practices
Hourh	\$17.29
Median Wages Hourly	
Projected Growth	\$35,960 Average (10,30%)
Frojecied Growin	Average (10-20%)

Computer software engineers, applications

0/ Projected Empleyment	Computer Software engineers, applications
% Projected Employment	
Skills	Programming Critical Thicking
	Critical Thinking
	Complex Problem Solving
	Troubleshooting
	Active Learning
	Technology Design
	Judgment and Decision Making
	Reading Comprehension
	Operations Analysis
	Systems Analysis
	Quality Control Analysis
	Active Listening
	Speaking
	Time Management
	Coordination
Abilities	Oral Comprehension
	Deductive Reasoning
	Near Vision
	Inductive Reasoning
	Problem Sensitivity
	Speech Clarity
Work Activities	Written Comprehension
Work Activities	Interacting With Computers
	Updating and Using Relevant Knowledge
	Getting Information
	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Thinking Creatively
	Identifying Objects, Actions, and Events
	Analyzing Data or Information
	Processing Information
Work Context	Face-to-Face Discussions
	Electronic Mail
	Spend Time Sitting
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Coordinate or Lead Others
Job Zone	4
Work Styles	Analytical Thinking
	Attention to Detail
	Cooperation
	Dependability
	Achievement/Effort
	Innovation
	Persistence
	Adaptability/Flexibility
14/	Initiative
Work Values	Achievement
<u> </u>	Independence
Work Needs	Ability Utilization Autonomy
	Working Conditions Achievement
	Responsibility Activity
	Creativity Security
	Social Status
Median Wages Hourly	\$37.06
Annual	\$77,090
Projected Growth	Much faster than average (36+%)
-	

Employment, recruitment, and placement specialists

Of Decision of French		ment, and placement specialists		
% Projected Employment				
Skills	Reading Comprehension	Critical Thinking		
	Service Orientation	Social Perceptiveness		
	Speaking	Negotiation		
	Active Listening	Time Management		
	Persuasion	Judgment and Decision Making		
	Writing	Persuasion		
	Active Learning	Management of Personnel Resources		
Abilities	Oral Comprehension	Written Comprehension		
	Oral Expression	Inductive Reasoning		
	Speech Clarity	Problem Sensitivity		
	Speech Recognition	,		
Work Activities	Interacting With Computers			
	Performing for or Working Direct	ly with the Public		
	Getting Information	y martine r deno		
	Organizing, Planning, and Priorit	izina Wark		
	Establishing and Maintaining Inte			
	Judging the Qualities of Things,			
	Performing Administrative Activit			
	Communicating with Persons Ou	uside Organization		
	Developing and Building Teams			
	Resolving Conflicts and Negotiat	<u> </u>		
	Coaching and Developing Others			
	Making Decisions and Solving P			
	Communicating with Supervisors			
		Guiding, Directing, and Motivating Subordinates		
	Processing Information			
	Identifying Objects, Actions, and	Events		
	Analyzing Data or Information			
	Assisting and Caring for Others			
	Coordinating the Work and Activ	Coordinating the Work and Activities of Others		
	Scheduling Work and Activities			
	Staffing Organizational Units			
	Documenting/Recording Informa	tion		
	Evaluating Information to Determ			
Work Context	Contact With Others	Indoors, Environmentally Controlled		
	Telephone	Importance of Being Exact or Accurate		
	Face-to-Face Discussions	Electronic Mail		
	Deal With External Customers	Time Pressure		
	Spend Time Sitting	Duration of Typical Work Week		
	Letters and Memos	Structured versus Unstructured Work		
	Frequency of Decision Making	Freedom to Make Decisions		
	Letters and Memos	Work With Work Group or Team		
Into Zono	Coordinate or Lead Others			
Job Zone	3	4		
Work Styles	Attention to Detail	Cooperation		
	Dependability	Concern for Others		
	Self Control	Adaptability/Flexibility		
	Stress Tolerance	Independence		
	Integrity	Leadership		
	Initiative	Social Orientation		
	Achievement/Effort	Persistence		
Work Values				
Work Needs	Working Conditions			
	Company Policies and Practices			
	Supervision, Human Relations			
Marking Manage Hourly	\$20.08			
Median Wages Annual	\$41,780			
Projected Growth	Faster than average (21-35%)			
,				

Computer systems analysts

0/ 5 / / 5 /	tomputer dystomic unarysts
% Projected Employment	
Skills	Active Learning
	Reading Comprehension
	Complex Problem Solving
	Critical Thinking
	Active Listening
	Troubleshooting
	Service Orientation
	Monitoring
	Time Management
	Quality Control Analysis
	Systems Analysis
	Coordination
	Technology Design
	Judgment and Decision Making
	Learning Strategies
A bilition	Equipment Selection
Abilities	Oral Comprehension
	Problem Sensitivity
	Inductive Reasoning
	Deductive Reasoning
Work Activities	Interacting With Computers
	Making Decisions and Solving Problems
	Processing Information
	Getting Information
	Updating and Using Relevant Knowledge
	Identifying Objects, Actions, and Events
	Analyzing Data or Information
	Communicating with Supervisors, Peers, or Subordinates
	Thinking Creatively
	Interpreting the Meaning of Information for Others
Work Context	Electronic Mail
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Telephone
	Spend Time Sitting
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Contact With Others
	Duration of Typical Work Week
Job Zone	4
Work Styles	Adaptability/Flexibility
175.11. 31,700	Attention to Detail
	Analytical Thinking
	Persistence Persistence
	Dependability
	Initiative
	Integrity
Work Values	Independence
	Achievement
Work Needs	Company Policies and Practices
	Ability Utilization
	Security
	Autonomy
	Responsibility
	Creativity
	Compensation
Median Wages Hourly	\$32.84
Annual	\$68,300
Projected Growth	Faster than average (21-35%)
-	

Accountants and auditors

% Projected Employment	2 10/	
Skills	Mathematics	Time Management
Skills		Time Management
	Active Listening	Active Learning
	Critical Thinking	Reading Comprehension
	Monitoring	Writing
	Judgment and Decision Making	
Abilities	Problem Sensitivity	Near Vision
	Deductive Reasoning	Oral Comprehension
	Information Ordering	Problem Sensitivity
	Oral Expression	Number Facility
	Written Expression	Speech Clarity
	Mathematical Reasoning	Speech Recognition
	Written Comprehension	Information Ordering
	Inductive Reasoning	
Work Activities	Interacting With Computers	
	Analyzing Data or Information	
	Processing Information	
	Getting Information	
	Documenting/Recording Information	tion
	Establishing and Maintaining Inte	
	Organizing, Planning, and Priorit	
	Communicating with Supervisors	
	Making Decisions and Solving Pr	
	Interpreting the Meaning of Inform	
	Evaluating Information to Determ	
	Identifying Objects, Actions, and	· · · · · · · · · · · · · · · · · · ·
	Monitor Processes, Materials, or	
	Judging the Qualities of Things,	
Work Context	Updating and Using Relevant Kn	owieuge
Work Context	Telephone	
	Electronic Mail	
	Indoors, Environmentally Control	lea
	Face-to-Face Discussions	A
	Structured versus Unstructured V	Vork
	Spend Time Sitting	
	Freedom to Make Decisions	
	Importance of Being Exact or Ac	curate
	Work With Work Group or Team	
	Letters and Memos	
	Contact With Others	
	Frequency of Decision Making	
	Time Pressure	
	Impact of Decisions on Co-worke	ers or Company Results
	Duration of Typical Work Week	
	Importance of Repeating Same 7	Tasks Tasks
	Consequence of Error	
Job Zone	4	
Work Styles	Attention to Detail	Adaptability/Flexibility
	Dependability	Independence
	Integrity	Self Control
	Analytical Thinking	Persistence
	Stress Tolerance	Concern for Others
	Cooperation	Initiative
	Achievement/Effort	Leadership
Work Values	Working Conditions	
Work Needs	Working Conditions	Activity
VVOIN IVOCUS	Security	Ability Utilization
	Compensation	Social Status
Harriet.	\$25.10	Juliai Status
Median Wages Hourly		
Annual Projected Growth	\$52,210	
Projected Growth	Faster than average (21-35%)	

Bookkeeping, accounting, and auditing clerks

Of Dunington I Francis	0.00/
% Projected Employment	
Skills	Mathematics
	Reading Comprehension
	Time Management
	Active Listening
Abilities	Near Vision
	Mathematical Reasoning
	Problem Sensitivity
Work Activities	Interacting With Computers
	Getting Information
	Processing Information
	Establishing and Maintaining Interpersonal Relationships
	Organizing, Planning, and Prioritizing Work
Work Context	Telephone
	Electronic Mail
	Importance of Being Exact or Accurate
	Importance of Repeating Same Tasks
	Face-to-Face Discussions
	Contact With Others
	Spend Time Sitting
	Structured versus Unstructured Work
	Time Pressure
	Freedom to Make Decisions
	Duration of Typical Work Week
	Work With Work Group or Team
Job Zone	Frequency of Decision Making 3
Work Styles	•
vvork Styles	Attention to Detail
	Integrity
	Dependability
	Cooperation
	Independence
	Self Control
	Initiative
	Persistence
	Stress Tolerance
	Adaptability/Flexibility
	Concern for Others
Work Values	
Work Needs	Working Conditions
	Independence
Madian Wagas Hourly	\$14.18
Median Wages Annual	
Projected Growth	Slower than average (0-9%)
<u> </u>	<u> </u>

Market research analysts

0/ Drainated Francis manual	4.70/
% Projected Employment	
Skills	Reading Comprehension
	Time Management
	Writing
	Active Listening
	Coordination
Abilities	Written Comprehension
	Oral Comprehension
	Written Expression
Work Activities	Communicating with Supervisors, Peers, or Subordinates
	Interacting With Computers
	Documenting/Recording Information
	Updating and Using Relevant Knowledge
	Establishing and Maintaining Interpersonal Relationships
	Getting Information
	Processing Information
	Communicating with Persons Outside Organization
	Making Decisions and Solving Problems
	Developing Objectives and Strategies
	Analyzing Data or Information
	Interpreting the Meaning of Information for Others
Work Context	Telephone
Work Comex	Electronic Mail
	Structured versus Unstructured Work
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Spend Time Sitting
	Freedom to Make Decisions
	Work With Work Group or Team
	Face-to-Face Discussions
	Contact With Others
	Time Pressure
Job Zone	4
Work Styles	Achievement/Effort
	Initiative
	Integrity
	Persistence
	Attention to Detail
	Dependability
	Innovation
Work Values	
Work Needs	Autonomy
	Working Conditions
Madian Mana Hourly	\$27.55
Median Wages Annual	
Projected Growth	Average (10-20%)

Sales representatives, services, all other

% Projected Employment	1.7%
Skills	
Abilities	
Work Activities	
Work Context	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages Hourly	\$22.50
Annual	\$46,790
Projected Growth	Average (10-20%)

Computer software engineers, systems software

% Projected Employment	-	o ongineoro, eyeteme eenmare
Skills	Complex Problem Solving	Reading Comprehension
Ciuno	Technology Design	Systems Analysis
	Troubleshooting	Mathematics
1	Critical Thinking	
	•	Operations Analysis
1	Active Learning	Active Listening
Abilition	Programming Poductive Programing	
Abilities	Deductive Reasoning	
Ments Anti-Mass	Inductive Reasoning	
Work Activities	Interacting With Computers	
	Making Decisions and Solving P	rodiems
1	Analyzing Data or Information	
	Updating and Using Relevant Kr	
	Organizing, Planning, and Priorit	
1	Communicating with Supervisors	s, Peers, or Subordinates
	Getting Information	
1	Evaluating Information to Determ	
	Documenting/Recording Information	tion
1	Identifying Objects, Actions, and	Events
1	Processing Information	
	Interpreting the Meaning of Infor	mation for Others
	Thinking Creatively	
1	Scheduling Work and Activities	
	Establishing and Maintaining Inte	erpersonal Relationships
1	Provide Consultation and Advice	
	Developing Objectives and Strat	egies
	Monitor Processes, Materials, or	
Work Context	Face-to-Face Discussions	<u> </u>
1	Electronic Mail	
	Importance of Being Exact or Ac	curate
1	Work With Work Group or Team	
1	Indoors, Environmentally Contro	
1	Spend Time Sitting	·· · -
1	Structured versus Unstructured	Nork
	Freedom to Make Decisions	TO IN
	Telephone	
1	Contact With Others	
1	Importance of Repeating Same	Tasks
	Spend Time Making Repetitive N	
		NULIUIIS
	Time Pressure	
loh Zona	Duration of Typical Work Week	
Job Zone Work Styles	Applytical Thinking	Adaptability/Elayibility
Work Styles	Analytical Thinking	Adaptability/Flexibility
	Attention to Detail	Dependability
1	Cooperation	Persistence
1	Initiative	Stress Tolerance
	Achievement/Effort	Leadership
	Integrity	Independence
	Innovation	
Work Values	Achievement	
	Independence	
Work Needs	Ability Utilization	
1	Working Conditions	
1	Responsibility	
1	Creativity	
	Social Status	
	Autonomy	
1	Achievement	
1	Activity	
	Security	
Madian Wagaa Hourly	\$39.48	
Projected Growth	Much faster than average (36+%	
		,

First-line supervisors/managers of office and administrative support workers

% Projected Employment		of office and administrative support workers
% Projected Employment Skills	Active Listening	Time Management
J5	Speaking	Management of Personnel Resources
	Reading Comprehension	Judgment and Decision Making
	Critical Thinking	Instructing
	Monitoring	Social Perceptiveness
Abilities	Oral Expression	Written Comprehension
	Oral Comprehension	Speech Clarity
	Written Expression	Number Facility
	Near Vision	,
Work Activities	Getting Information	
	Communicating with Supervisors	s, Peers, or Subordinates
	Establishing and Maintaining Inte	erpersonal Relationships
	Interacting With Computers	
	Guiding, Directing, and Motivatin	ng Subordinates
	Making Decisions and Solving P	roblems
	Organizing, Planning, and Priorit	tizing Work
	Developing and Building Teams	
	Communicating with Persons Ou	utside Organization
	Identifying Objects, Actions, and	
	Coordinating the Work and Activ	
	Coaching and Developing Others	S
	Processing Information	
	Evaluating Information to Determ	·
	Updating and Using Relevant Kr	· ·
	Resolving Conflicts and Negotiat	
	Performing Administrative Activit	ties
Mad Ocale	Scheduling Work and Activities	
Work Context	Telephone	
	Electronic Mail	
	Face-to-Face Discussions	
	Contact With Others	
	Work With Work Group or Team	
	Structured versus Unstructured \	
	Responsibility for Outcomes and Deal With External Customers	i results
	Freedom to Make Decisions	
	Importance of Being Exact or Ac	courato
	Indoors, Environmentally Contro	
	Frequency of Decision Making	iicu
	Time Pressure	
	Spend Time Sitting	
	Duration of Typical Work Week	
	Coordinate or Lead Others	
	Letters and Memos	
	Importance of Repeating Same	Tasks
	Impact of Decisions on Co-worke	
Job Zone	3	
Work Styles	Integrity	Leadership
	Dependability	Self Control
	Attention to Detail	Independence
	Cooperation	Adaptability/Flexibility
	Stress Tolerance	Persistence
	Initiative	Analytical Thinking
	Concern for Others	Achievement/Effort
Work Values	Independence	
	Achievement	
Work Needs	Authority	Working Conditions
	Autonomy	Responsibility
	Activity	Achievement
Median Wages Hourly	\$20.38	
Projected Growth		
	Slower than average (0-9%)	

Secretaries, except legal, medical, and executive

Skills Active Listening
Reading Comprehension Time Management Writing Speaking Abilities Oral Comprehension Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Time Management Writing Speaking Abilities Oral Comprehension Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Repeating Same Tasks
Writing Speaking Abilities Oral Comprehension Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Speaking Abilities Oral Comprehension Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Abilities Oral Comprehension Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Oral Expression Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Written Comprehension Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Speech Clarity Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Speech Recognition Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Information Ordering Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Work Activities Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Communicating with Supervisors, Peers, or Subordinates Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Performing Administrative Activities Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Getting Information Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Documenting/Recording Information Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Establishing and Maintaining Interpersonal Relationships Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Processing Information Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Organizing, Planning, and Prioritizing Work Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Communicating with Persons Outside Organization Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Work Context Telephone Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Face-to-Face Discussions Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Contact With Others Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Structured versus Unstructured Work Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Indoors, Environmentally Controlled Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Spend Time Sitting Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Importance of Being Exact or Accurate Importance of Repeating Same Tasks
Importance of Repeating Same Tasks
Letters and Memos
Electronic Mail
Freedom to Make Decisions
Work With Work Group or Team
Deal With External Customers Job Zone 2
Work Styles Attention to Detail
Dependability
Cooperation
Integrity
Self Control
Independence
Concern for Others
Stress Tolerance
Adaptability/Flexibility
Achievement/Effort
Initiative
Work Values
Work Needs Moral Values
Working Conditions
Activity
House, \$12.92
Median Wages Annual \$26,670
Projected Growth Much slower than average (negative growth)

Network systems and data communications analysts

(- · -		u data communications analysis
% Projected Employment		
Skills	Equipment Selection	Judgment and Decision Making
	Troubleshooting	Technology Design
	Complex Problem Solving	Coordination
	Active Listening	Systems Evaluation
	Active Learning	Operations Analysis
	Critical Thinking	Equipment Maintenance
	Installation	Systems Analysis
A L 101	Reading Comprehension	Instructing
Abilities	Near Vision	Deductive Reasoning
Work Activities	Written Comprehension	Problem Sensitivity
Work Activities	Interacting With Computers	Doore or Cubordinates
	Communicating with Supervisors Getting Information	s, Peers, or Subordinates
	Thinking Creatively	
	Communicating with Persons Ou	stoide Organization
	Establishing and Maintaining Inte	<u> </u>
	Identifying Objects, Actions, and	
	Organizing, Planning, and Priorit	
	Making Decisions and Solving P	
	Updating and Using Relevant Kn	
	Monitor Processes, Materials, or	
	Judging the Qualities of Things,	<u> </u>
	Evaluating Information to Determ	
	Analyzing Data or Information	
	Interpreting the Meaning of Information	mation for Others
	Processing Information	
	Documenting/Recording Informa	tion
Work Context	Telephone	
	Electronic Mail	
	Indoors, Environmentally Control	lled
	Face-to-Face Discussions	
	Importance of Being Exact or Ac	curate
	Structured versus Unstructured \	Work
	Duration of Typical Work Week	
	Freedom to Make Decisions	
	Work With Work Group or Team	
	Contact With Others	
	Spend Time Sitting	
Job Zone	3	
Work Styles	Attention to Detail	
	Dependability	
	Analytical Thinking Stress Tolerance	
	Initiative	
	Adaptability/Flexibility	
	Persistence	
	Achievement/Effort	
	Self Control	
	Cooperation	
	Independence	
	Integrity	
Work Values	Achievement	
Work Needs	Ability Utilization	
	Compensation	
	Company Policies and Practices	
	Autonomy	
	Working Conditions	
	Security	
Madian Wagaa Hourly	\$29.69	
Median Wages Annual	\$61,750	
Projected Growth	Much faster than average (36+%	<u> </u>

Computer support specialists

O/ Drainated Employment	4 00/
% Projected Employment	
Skills	Troubleshooting
	Reading Comprehension
1	Critical Thinking
	Active Listening
	Writing
	Speaking
	Learning Strategies
	Active Learning
Abilities	Inductive Reasoning
	Oral Expression
	Written Comprehension
	Oral Comprehension
	Deductive Reasoning
	Problem Sensitivity
	Speech Recognition
	Information Ordering
	Speech Clarity
	Near Vision
Work Activities	Interacting With Computers
Work Activities	Getting Information
	Updating and Using Relevant Knowledge
	Making Decisions and Solving Problems Communicating with Persons Outside Organization
	Communicating with Supervisors, Peers, or Subordinates
	Establishing and Maintaining Interpersonal Relationships
	Identifying Objects, Actions, and Events
	Interpreting the Meaning of Information for Others
	Documenting/Recording Information
Work Context	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Telephone
	Contact With Others
	Electronic Mail
	Structured versus Unstructured Work
Job Zone	3
Work Styles	Attention to Detail
	Analytical Thinking
	Dependability
1	Adaptability/Flexibility
	Cooperation
	Independence
1	Integrity
1	Persistence
1	Initiative
	Concern for Others
	Stress Tolerance
	Innovation
1	
1	Self Control
	Leadership
	Achievement/Effort
14/04/1/04/11	Social Orientation
Work Values	A. da a a a a a a
Work Needs	Autonomy
	Working Conditions
1	Security
	Company Policies and Practices
Median Wages Hourly	\$19.52
Annuai	\$40,610
Projected Growth	Faster than average (21-35%)

Sales and related workers, all other

% Projected Employment	1.0%
Skills	
Abilities	
Work Activities	
Work Context	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages Hourly	\$15.77
Annuai	\$32,800
Projected Growth	Average (10-20%)

Environmental engineers

	Environmental engineers
% Projected Employment	
Skills	Reading Comprehension
	Active Listening
	Critical Thinking
	Science
	Writing
	Speaking
	Time Management
Abilities	Oral Expression
	Oral Comprehension
	Problem Sensitivity
	Deductive Reasoning
	Inductive Reasoning
	Written Comprehension
Work Activities	Evaluating Information to Determine Compliance with Standards
VVOIN ACTIVITIES	Getting Information
	Monitor Processes, Materials, or Surroundings
	Making Decisions and Solving Problems
	Interacting With Computers
	Communicating with Supervisors, Peers, or Subordinates
	Communicating with Persons Outside Organization
Work Context	Telephone
	Electronic Mail
	Face-to-Face Discussions
	Contact With Others
	Letters and Memos
	Structured versus Unstructured Work
	Indoors, Environmentally Controlled
	Importance of Being Exact or Accurate
	Spend Time Sitting
	Freedom to Make Decisions
	Work With Work Group or Team
	Coordinate or Lead Others
Job Zone	5
Work Styles	Initiative
Work Glyles	Integrity
	Attention to Detail
	Persistence
	Achievement/Effort
	Independence
	Cooperation
	Dependability
	Analytical Thinking
	Self Control
	Leadership
	Stress Tolerance
	Adaptability/Flexibility
	Innovation
Work Values	
Work Needs	
11- 1	\$32.74
Median Wages Hourly Annual	
Projected Growth	Faster than average (21-35%)
.,	

Laborers and freight, stock, and material movers, hand

% Projected Employment	1.1%			
Skills				
Abilities				
Work Activities	Performing General Physical Activities			
	Getting Information			
	Inspecting Equipment, Structures, or Material			
	Monitor Processes, Materials, or Surroundings			
	Operating Vehicles, Mechanized Devices, or Equipment			
	Handling and Moving Objects			
Work Context	Time Pressure			
	Contact With Others			
	Face-to-Face Discussions			
	Spend Time Standing			
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls			
	Importance of Being Exact or Accurate			
	Exposed to Contaminants			
	Indoors, Not Environmentally Controlled			
	Wear Common Protective or Safety Equipment			
	Work With Work Group or Team			
	Duration of Typical Work Week			
	Sounds, Noise Levels Are Distracting or Uncomfortable			
	Very Hot or Cold Temperatures			
Job Zone	2			
Work Styles	Dependability			
	Attention to Detail			
	Integrity			
	Cooperation			
Work Values				
Work Needs	Moral Values			
Median Wages Hourly	\$9.91			
Annual	\$20,610			
Projected Growth	Average (10-20%)			

Computer and information systems managers

	0.00/				
% Projected Employment					
Skills	Reading Comprehension				
	Critical Thinking				
	Active Listening				
	Judgment and Decision Making				
	Active Learning				
	Negotiation				
	Management of Financial Resources				
At THE	Complex Problem Solving				
Abilities	Problem Sensitivity				
	Oral Expression				
	Oral Comprehension				
	Written Comprehension				
	Deductive Reasoning				
	Near Vision				
	Speech Clarity				
	Inductive Reasoning				
Work Activities	Getting Information				
VVOIN ACTIVITIES	Interacting With Computers				
	Identifying Objects, Actions, and Events				
	Interpreting the Meaning of Information for Others				
	Scheduling Work and Activities				
	Making Decisions and Solving Problems				
	Establishing and Maintaining Interpersonal Relationships				
	Thinking Creatively				
Work Context	Telephone				
	Electronic Mail				
	Face-to-Face Discussions				
	Work With Work Group or Team Contact With Others Freedom to Make Decisions Spend Time Sitting Structured versus Unstructured Work Duration of Typical Work Week				
	Indoors, Environmentally Controlled				
	Importance of Being Exact or Accurate				
	Letters and Memos				
	Coordinate or Lead Others				
Joh Zono	<u></u>				
Job Zone	5				
Job Zone Work Styles	Dependability				
	Dependability Self Control				
	Dependability Self Control Integrity				
	Dependability Self Control				
	Dependability Self Control Integrity				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative				
Work Styles	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance				
	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort				
Work Styles	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence				
Work Styles Work Values	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Security				
Work Styles Work Values	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Security Autonomy				
Work Styles Work Values	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Ability Utilization Security Compensation				
Work Styles Work Values Work Needs	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Responsibility				
Work Styles Work Values Work Needs Median Wages Hourly	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Responsibility \$46.41				
Work Styles Work Values Work Needs	Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Responsibility				

Sales representatives, wholesale and manufacturing, except technical and scientific Products

% Projected Employment	0.9%
Skills	Active Listening
- CKIIIS	Speaking
	Time Management
	Reading Comprehension Persuasion
	Service Orientation
Abilities	
Abilities	Oral Expression
	Oral Comprehension
Work Activities	Speech Clarity Establishing and Maintaining Interpersonal Relationships
Work Activities	
	Getting Information
	Selling or Influencing Others
	Communicating with Persons Outside Organization
Manta Cantairt	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone Contact With Others
	Contact With Others
	Face-to-Face Discussions
	Deal With External Customers
	In an Enclosed Vehicle or Equipment
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Electronic Mail
	Frequency of Decision Making
	Duration of Typical Work Week
	Work With Work Group or Team
	Physical Proximity
	Time Pressure
	Level of Competition
	Importance of Being Exact or Accurate
	Impact of Decisions on Co-workers or Company Results
Job Zone	3
Work Styles	Integrity
	Dependability
	Initiative
	Stress Tolerance
	Persistence
	Self Control
	Attention to Detail
	Cooperation
	Analytical Thinking
	Independence
	Achievement/Effort
	Concern for Others
	Adaptability/Flexibility
	Innovation
Work Values	
Work Needs	Autonomy
Median Wages Hourly	\$22.78
- Annuai	
Projected Growth	Average (10-20%)

Network and computer systems administrators

	Network and computer systems administrators
% Projected Employment	
Skills	Troubleshooting
	Reading Comprehension
	Active Listening
	Active Learning
	Complex Problem Solving
	Critical Thinking
	Service Orientation
Abilities	Near Vision
	Problem Sensitivity
	Inductive Reasoning
	Oral Comprehension
	Oral Expression
	Written Comprehension
	Information Ordering
	Deductive Reasoning
	Finger Dexterity
Work Activities	Interacting With Computers
	Updating and Using Relevant Knowledge
	Making Decisions and Solving Problems
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Processing Information
	Identifying Objects, Actions, and Events
Work Context	Electronic Mail
Work Comox	Telephone
	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Contact With Others
	Structured versus Unstructured Work
	Importance of Being Exact or Accurate
	Freedom to Make Decisions
	Work With Work Group or Team
	Duration of Typical Work Week
	Spend Time Sitting
lah Zana	Time Pressure
Job Zone	4
Work Styles	Attention to Detail
	Dependability Analytical Thinking
	Analytical Thinking
	Cooperation
	Initiative
	Stress Tolerance
	Adaptability/Flexibility
	Integrity
	Achievement/Effort
	Independence
	Persistence
	Innovation
	Self Control
	Leadership
Work Values	
Work Needs	
Median Wages Hourly	\$28.81
Annuai	
Projected Growth	Much faster than average (36+%)

Chief executives

0/ Projected Emiler and	0.89/				
% Projected Employment					
Skills	Judgment and Decision Making		Time Management		
	Mathematics	Reading Comprehension	Active Learning		
	Negotiation	Speaking	Systems Evaluation		
	Coordination	Learning Strategies	Social Perceptiveness		
	Critical Thinking	Writing	Management of Financial Resource		
	Active Listening	Persuasion	Management of Material Resources		
	Monitoring	Management of Personnel Resou	<u> </u>		
Abilities	Oral Comprehension	Speech Clarity	Problem Sensitivity		
Abilities		•	-		
	Oral Expression	Deductive Reasoning	Fluency of Ideas		
	Written Comprehension	Inductive Reasoning	Originality		
	Written Expression	Number Facility			
Work Activities	Making Decisions and Solving P	roblems			
	Getting Information				
	Communicating with Supervisors	s, Peers, or Subordinates			
	Communicating with Persons Ou				
	Establishing and Maintaining Inte				
	Developing Objectives and Strate				
		egies			
	Developing and Building Teams	ing with Others			
	Resolving Conflicts and Negotiat	ing with Others			
	Selling or Influencing Others				
	Analyzing Data or Information				
	Organizing, Planning, and Priorit	izing Work			
	Thinking Creatively				
	Guiding, Directing, and Motivatin	g Subordinates			
	Coordinating the Work and Activities of Others Monitoring and Controlling Resources				
	Monitoring and Controlling Resources				
	Judging the Qualities of Things, Services, or People				
	Coaching and Developing Others	5	5 11177 5 10		
Work Context	Telephone		Deal With External Customers		
	Electronic Mail		Indoors, Environmentally Controlled		
	Face-to-Face Discussions				
	Impact of Decisions on Co-workers or Company Results				
	Frequency of Decision Making				
	Freedom to Make Decisions				
	Importance of Being Exact or Ac				
	Duration of Typical Work Week				
	Contact With Others				
	Letters and Memos				
	Structured versus Unstructured Work				
	Responsibility for Outcomes and Results				
	Time Pressure				
	Work With Work Group or Team				
	Coordinate or Lead Others				
		Responsible for Others' Health and Safety			
		nd Safety			
	Responsible for Others' Health a	-			
Joh Zone	Responsible for Others' Health a Deal With Unpleasant or Angry F	-			
Job Zone Work Styles	Responsible for Others' Health a Deal With Unpleasant or Angry F 5	People	Solf Control		
Job Zone Work Styles	Responsible for Others' Health a Deal With Unpleasant or Angry F 5 Leadership	People	Self Control		
	Responsible for Others' Health a Deal With Unpleasant or Angry F 5 Leadership Integrity	People Independence Persistence	Innovation		
	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative	People Independence Persistence Adaptability/Flexibility	Innovation Analytical Thinking		
	Responsible for Others' Health a Deal With Unpleasant or Angry F 5 Leadership Integrity	People Independence Persistence	Innovation		
	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative	People Independence Persistence Adaptability/Flexibility	Innovation Analytical Thinking		
	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance	Independence Persistence Adaptability/Flexibility Cooperation	Innovation Analytical Thinking Social Orientation		
	Responsible for Others' Health a Deal With Unpleasant or Angry F 5 Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions	Innovation Analytical Thinking Social Orientation		
Work Styles	Responsible for Others' Health at Deal With Unpleasant or Angry F 5 Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail	Innovation Analytical Thinking Social Orientation		
Work Styles Work Values	Responsible for Others' Health at Deal With Unpleasant or Angry F 5 Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition	Innovation Analytical Thinking Social Orientation Concern for Others		
Work Styles	Responsible for Others' Health a Deal With Unpleasant or Angry F 5 Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices		
Work Styles Work Values	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security		
Work Styles Work Values	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions Autonomy	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status Ability Utilization	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security Variety		
Work Styles Work Values	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions Autonomy Activity	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security		
Work Styles Work Values	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions Autonomy	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status Ability Utilization	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security Variety		
Work Styles Work Values Work Needs	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions Autonomy Activity	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status Ability Utilization	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security Variety		
Work Styles Work Values Work Needs	Responsible for Others' Health a Deal With Unpleasant or Angry F Leadership Integrity Initiative Stress Tolerance Achievement/Effort Dependability Independence Achievement Authority Working Conditions Autonomy Activity Responsibility	Independence Persistence Adaptability/Flexibility Cooperation Attention to Detail Working Conditions Recognition Compensation Social Status Ability Utilization	Innovation Analytical Thinking Social Orientation Concern for Others Company Policies and Practices Security Variety		

Telemarketers

% Projected Employment	1.4%
Skills	Active Listening
	Speaking
	Persuasion
	Reading Comprehension
	Time Management
Abilities	Oral Expression
	Oral Comprehension
	Speech Clarity
Work Activities	Selling or Influencing Others
	Interacting With Computers
Work Context	Telephone
	Contact With Others
	Spend Time Sitting
	Deal With Unpleasant or Angry People
	Face-to-Face Discussions
	Physical Proximity
	Indoors, Environmentally Controlled
	Importance of Being Exact or Accurate
Job Zone	2
Work Styles	Stress Tolerance
	Integrity
	Persistence
	Dependability
	Achievement/Effort
	Adaptability/Flexibility
	Self Control
	Attention to Detail
	Initiative
	Cooperation
Work Values	
Work Needs	
Median Wages Hourly	\$9.79
Annuai	\$20,360
Projected Growth	Much slower than average (negative growth)

Management, Technical and Scientific Consulting Receptionists and information clerks

% Projected Employment	0.9%			
Skills	Active Listening			
Skills	Speaking Speaking			
	Reading Comprehension			
	Writing			
Abilities	Oral Comprehension			
Abilities	Oral Expression			
	Speech Recognition			
Work Activities	Interacting With Computers			
Work Activities	Getting Information			
	Performing Administrative Activities			
Work Context	Telephone			
Work Context	Contact With Others			
	Face-to-Face Discussions			
	Structured versus Unstructured Work			
	Importance of Being Exact or Accurate Spend Time Sitting			
	Work With Work Group or Team			
	Importance of Repeating Same Tasks			
	Freedom to Make Decisions			
	Indoors, Environmentally Controlled			
Letters and Memos Deal With External Customers				
Job Zone	2			
Work Styles	Cooperation			
Work Styles	·			
	Dependability Integrity			
	Stress Tolerance			
	Self Control			
	Attention to Detail			
	Concern for Others			
	Independence			
	Social Orientation			
	Initiative			
Work Values	HINGUIVE			
Work Needs				
110.000	\$10.65			
Median Wages Annual	\$22,150			
Projected Growth	Faster than average (21-35%)			
. rojootoa Growin	1 40.01 (1141) 4701490 (21 0070)			

Management, Technical and Scientific Consulting Training and development specialists

% Projected Employment				
% Frojected Employment Skills		Critical Thinking		
Skilis	Active Listening	Critical Thinking		
	Time Management	Instructing		
	Speaking	Learning Strategies		
	Writing	Active Learning		
A L 100	Reading Comprehension	Service Orientation		
Abilities	Speech Clarity	Deductive Reasoning		
	Oral Expression	Speech Recognition		
	Oral Comprehension	Originality		
	Written Comprehension	Written Expression		
Work Activities	Communicating with Supervisors	s, Peers, or Subordinates		
	Getting Information			
	Training and Teaching Others			
	Organizing, Planning, and Priorit			
	Developing Objectives and Strat	egies		
	Interacting With Computers			
	Making Decisions and Solving P	roblems		
	Updating and Using Relevant Kr	nowledge		
	Developing and Building Teams			
	Establishing and Maintaining Inte	erpersonal Relationships		
	Performing for or Working Direct	ly with the Public		
	Evaluating Information to Determ	nine Compliance with Standards		
	Coaching and Developing Others	S		
	Judging the Qualities of Things,			
	Processing Information			
	Scheduling Work and Activities			
	Coordinating the Work and Activ	ities of Others		
	Analyzing Data or Information			
	Thinking Creatively			
Work Context	Telephone			
Tom Comen	Electronic Mail			
	Freedom to Make Decisions			
	Face-to-Face Discussions			
	Indoors, Environmentally Controlled			
	Deal With External Customers			
	Coordinate or Lead Others			
	Letters and Memos	aurata.		
	Importance of Being Exact or Ac	curate		
	Contact With Others			
	Impact of Decisions on Co-works	ers or Company Results		
	Duration of Typical Work Week			
	Public Speaking			
	Structured versus Unstructured \	Nork		
Job Zone	4	A 1 4 1 12 (EL 11 12)		
Work Styles	Dependability	Adaptability/Flexibility		
	Integrity	Attention to Detail		
	Cooperation	Leadership		
	Concern for Others	Initiative		
	Stress Tolerance	Independence		
	Social Orientation	Analytical Thinking		
	Self Control			
Work Values	Independence			
Work Needs	Working Conditions			
	Authority			
	Co-workers			
	Company Policies and Practices			
	Achievement			
	Responsibility			
Madian Warran Hourly	\$22.05			
Median Wages Annual	\$45,870			
Projected Growth	Faster than average (21-35%)			

Financial managers

2.5					
% Projected Employment					
Skills	Mathematics	Writing	Active Learning		
	Reading Comprehension	Time Management	Speaking		
	Critical Thinking	Instructing	Learning Strategies		
	Active Listening	Persuasion	Negotiation		
	Time Management	Monitoring	Social Perceptiveness		
	Judgment and Decision Making	Service Orientation	Management of Financial Resources		
	Coordination	Mathematics	Management of Personnel Resources		
Abilities	Oral Expression	Written Comprehension	Speech Recognition		
	Problem Sensitivity	Oral Comprehension	Near Vision		
	Deductive Reasoning	Written Expression	Inductive Reasoning		
	Speech Clarity	TTIMON Expression	madelive reasoning		
Work Activities	Interacting With Computers				
Work Activities	Getting Information				
	Processing Information				
	Analyzing Data or Information				
	Analyzing Data or Information				
	Monitoring and Controlling Reso				
	Communicating with Supervisors				
	Establishing and Maintaining Inte				
	Making Decisions and Solving P	roblems			
	Updating and Using Relevant Kr	nowledge			
	Updating and Using Relevant Kr	nowledge			
	Evaluating Information to Determ	nine Compliance with Standards			
	Organizing, Planning, and Priorit				
	Selling or Influencing Others	. 3			
	Performing for or Working Direct	ly with the Public			
	Communicating with Persons Ou				
	Documenting/Recording Informa				
		MOH			
	Developing and Building Teams				
	Monitor Processes, Materials, or Surroundings				
	Judging the Qualities of Things,				
	Interpreting the Meaning of Information for Others				
	Provide Consultation and Advice to Others				
Work Context	Telephone		Time Pressure		
	Face-to-Face Discussions	Coordinate or Lead Others			
	Electronic Mail	Deal With External Customers			
	Frequency of Decision Making		Consequence of Error		
	Contact With Others		Level of Competition		
	Letters and Memos				
	Spend Time Sitting				
	Impact of Decisions on Co-worke	ers or Company Results			
	Structured versus Unstructured				
	Work With Work Group or Team				
	Importance of Being Exact or Ac				
	Indoors, Environmentally Contro				
	Freedom to Make Decisions	ileu			
	Duration of Typical Work Week				
	Responsibility for Outcomes and				
	Importance of Repeating Same				
Job Zone	5	4			
Work Styles	Integrity	Independence	Innovation		
	Cooperation	Persistence	Leadership		
	Analytical Thinking	Initiative	Social Orientation		
	Dependability	Achievement/Effort	Stress Tolerance		
	Attention to Detail	Self Control			
Work Values	Achievement				
Work Needs	Authority	Ability Utilization	Responsibility		
770.7770000	Working Conditions	Company Policies and Practices	Autonomy		
	=	Company Folicies and Fractices	Autonomy		
Activity					
Median Wages Hourly	\$41.48				
Annual					
Projected Growth	Average (10-20%)				

Registered nurses

% Projected Employment	0.8%			
Skills		Monitoring		
Skills	Active Listening	•		
	Reading Comprehension	Writing Active Learning		
	Critical Thinking	Active Learning		
	Instructing	Coordination		
	Speaking	Judgment and Decision Making		
	Time Management	Learning Strategies		
	Service Orientation	Science		
AL TO	Social Perceptiveness			
Abilities	Problem Sensitivity	Deductive Reasoning		
	Oral Expression	Speech Clarity		
	Oral Comprehension	Written Expression		
	Inductive Reasoning	Written Comprehension		
Mork Activities	Speech Recognition			
Work Activities	Assisting and Caring for Others			
	Documenting/Recording Informa	tion		
	Getting Information	and the Control of th		
	Updating and Using Relevant Kn			
	Organizing, Planning, and Priorit			
	Identifying Objects, Actions, and			
	Making Decisions and Solving Pl			
	Performing for or Working Direct			
	Communicating with Supervisors			
	Establishing and Maintaining Inte			
	Monitor Processes, Materials, or	<u> </u>		
Work Context	Interpreting the Meaning of Infor	mation for Others		
Work Context	Telephone			
	Contact With Others			
	Face-to-Face Discussions			
	Exposed to Disease or Infections			
	Physical Proximity Work With Work Croup or Toom			
	Work With Work Group or Team			
	Importance of Being Exact or Accurate			
	Frequency of Decision Making			
	Indoors, Environmentally Controlled			
	Impact of Decisions on Co-workers or Company Results			
	Consequence of Error	at . Facility as and		
	Wear Common Protective or Saf	ety Equipment		
	Deal With External Customers			
	Freedom to Make Decisions	AL		
	Structured versus Unstructured V	VVOTK		
	Time Pressure	De cala		
	Deal With Unpleasant or Angry F Coordinate or Lead Others	reopie		
		nd Cofety		
Job Zone	Responsible for Others' Health a	nd Salety		
Work Styles	Integrity	Initiative		
WOIN Styles	Dependability	Independence		
	Self Control	Social Orientation		
	Concern for Others	Analytical Thinking		
	Cooperation	Achievement/Effort		
	Attention to Detail	Leadership		
	Adaptability/Flexibility	Persistence		
	Stress Tolerance	Innovation		
Work Values	Achievement	IIIIOVAUOII		
WOIN VAIUES	Relationships			
Work Needs	Social Service	Achievement		
WOIN INCCUS	Co-workers	Activity		
	Ability Utilization	Security		
Hourky	House, \$26.29			
Median Wages Annual	\$54,670			
	Projected Growth Faster than average (21-35%)			
Frojecieu Growin	i asici iliali avelaye (21-35%)			

Team assemblers

% Projected Employment	12.8%	
Skills		
Abilities		
Work Activities	Handling and Moving Objects	
	Controlling Machines and Processes	
	Communicating with Supervisors, Peers, or Subordinates	
	Identifying Objects, Actions and Events	
	Inspecting Equipment, Structures or Material	
	Getting Information	
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	
	Wear Common Protective or Safety Equipment	
	Importance of Being Exact or Accurate	
	Spend Time Making Repetitive Motions	
	Spend Time Standing	
	Face-to-Face Discussions	
	Time Pressure	
	Work With Work Group or Team	
	Sounds, Noise Levels Are Distracting or Uncomfortable	
Job Zone	2	
Work Styles	Attention to Detail	
	Dependability	
Work Values		
Work Needs		
Median Wages Hourly	\$11.60	
Annuai	' '	
Projected Growth	Slower than average (0-9%)	

First-line supervisors/managers of production and operating workers

% Projected Employment	-line supervisors/managers of 4.5%	<u> </u>			
Skills	Active Listening	Speaking			
Oruno .	Reading Comprehension	Time Management			
	Management of Personnel Resources				
	Instructing	Judgement and Decision Making			
	•				
A le iliti e e	Monitoring	Coordination			
Abilities	Oral Expression				
	Oral Comprehension				
	Problem Sensitivity				
Work Activities	Communicating with Supervisors, Peers, or Subordinates				
	Making Decisions and Solving Problems				
	Coordinating the Work and Activities of				
	Guiding, Directing, and Motivating Sub	ordinates			
	Getting Information				
	Monitor Processes, Materials, or Surro				
	Organizing, Planning, and Prioritizing V				
	Resolving Conflicts and Negotiating wi	th Others			
	Developing and Building Teams				
	Scheduling Work and Activities				
	Training and Teaching Others				
	Coaching and Developing Others				
	Judging the Qualities of Things, Service	es, or People			
	Inspecting Equipment, Structures, or M	laterial attention of the state			
	Establishing and Maintaining Interpers	onal Relationships			
	Identifying Objects, Actions, and Event	s			
Work Context	Face-to-Face Discussions				
	Contact With Others				
	Duration of Typical Work Week				
	Responsible for Others' Health and Sa	fety			
	Responsibility for Outcomes and Results Wear Common Protective or Safety Equipment				
	Time Pressure				
	Work With Work Group or Team				
	Telephone				
	Freedom to Make Decisions				
	Frequency of Decision Making				
	Importance of Being Exact or Accurate				
	Impact of Decisions on Co-workers or				
	Structured versus Unstructured Work	Company Results			
		or Uncomfortable			
	Sounds, Noise Levels Are Distracting or Uncomfortable Electronic Mail				
	Coordinate or Lead Others				
	Pace Determined by Speed of Equipme	ent			
Job Zone	3	Ont			
Work Styles	Dependability	Integrity	Analytical Thinking		
Work Olylos	Leadership	Cooperation	Concern for Others		
	Self Control	Adaptability/Flexibility	Independence		
	Attention to Detail	Initiative	Achievement/Effort		
	Stress Tolerance	Persistence	Innovation		
Work Values	Ouess Idiciance	1 61313161166	IIIIOValiOII		
Work Needs	Authority				
WOIN NEEDS					
Responsibility					
	Autonomy				
I In wh	Co-workers				
Median Wages Hourly	\$22.18 \$46.140				
- Annuai	. ,				
Projected Growth	Slower than average (0-9%)				

Industrial engineers

% Projected Employment	1.1%			
Skills	Critical Thinking			
	Active Listening			
	Time Management			
	Reading Comprehension			
	Complex Problem Solving			
Abilities	Oral Expression	Mathematical Reasoning		
	Deductive Reasoning	Inductive Reasoning		
	Oral Comprehension	Information Ordering		
	Problem Solving	Speech Clarity		
Work Activities	Communicating with Supervisors, Pee			
	Making Decisions and Solving Problems			
	Interacting With Computers			
	Getting Information			
	Analyzing Data or Information			
	Establishing and Maintaining Interpers	onal Relationships		
	Documenting/Recording Information	·		
	Processing Information			
Work Context	Face-to-Face Discussions			
	Telephone			
	Duration of Typical Work Week			
	Importance of Being Exact or Accurate			
	Electronic Mail	;		
Wear Common Protective or Safety Equipment		quipment		
Indoors, Environmentally Controlled				
	Work With Work Group or Team			
	Contact With Others			
	Impact of Decisions on Co-workers or	Company Results		
	Sounds, Noise Levels Are Distracting or Uncomfortable			
	Structured versus Unstructured Work			
	Freedom to Make Decisions			
Job Zone	4			
Work Styles	Attention to Detail	Innovation		
	Analytical Thinking	Persistence		
	Dependability	Cooperation		
	Initiative	Leadership		
	Adaptability/Flexibility	Achievement/Effort		
	Integrity	Independence		
Work Values	Achievement			
	Independence			
Work Needs	_Ability Utilization	Authority		
	Autonomy	Social Status		
	Creativity	Achievement		
	Responsibility	Working Conditions		
	Activity			
Median Wages Hourly	\$32.05			
Annuai	. ,			
Projected Growth	Average (10-20%)			

Helpers--Production workers

% Projected Employment	2.9%	
Skills		
Abilities		
Work Activities	Handling and Moving Objects	
	Performing General Physical Activities	
Work Context	Wear Common Protective or Safety Equipment	
	Time Pressure	
	Spend Time Standing	
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	
	Exposed to Contaminants	
	Duration of Typical Work Week	
	Sounds, Noise Levels Are Distracting or Uncomfortable	
	Importance of Being Exact or Accurate	
	Spend Time Bending or Twisting the Body	
	Exposed to Minor Burns, Cuts, Bites, or Stings	
Job Zone	1	
Work Styles	Dependability	
	Attention to Detail	
Work Values		
Work Needs	Moral Values	
Median Wages Hourly	\$9.80	
Annual	\$20,390	
Projected Growth	Slower than average (0-9%)	

Welders, cutters, solderers, and brazers

Skills Reading Comprehension Quality Control Analysis Learning Strategies Arm-Hand Steadiness Work Activities Handling and Moving Objects Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	% Projected Employ	ment	2.7%		
Quality Control Analysis Learning Strategies Arm-Hand Steadiness Work Activities Handling and Moving Objects Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Abilities Arm-Hand Steadiness Work Activities Handling and Moving Objects Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity	J Okins				
Abilities Arm-Hand Steadiness Work Activities Handling and Moving Objects Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	İ				
Work Activities Handling and Moving Objects Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	Δhilities		· · ·		
Controlling Machines and Processes Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	Tim Hand Globalitoc				
Getting Information Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Performing General Physical Activities Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Inspecting Equipment, Structures, or Material Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone Indoors Actions Actions Indoors Accurate	İ				
Identifying Objects, Actions, and Events Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Communicating with Supervisors, Peers, or Subordinates Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	İ				
Work Context Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone Wear Common Protective or Safety Equipment Spend Time Using Your Hands to Handle, Controls Face-to-Face Discussions Face-to-Face					
Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2	Work Context				
Face-to-Face Discussions Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Exposed to Contaminants Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Spend Time Standing Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Importance of Being Exact or Accurate Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2			·		
Indoors, Not Environmentally Controlled Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Time Pressure Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Contact With Others Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Indoors, Environmentally Controlled Work With Work Group or Team Physical Proximity Job Zone 2					
Work With Work Group or Team Physical Proximity Job Zone 2					
Physical Proximity Job Zone 2					
Job Zone 2			·		
Work Styles Attention to Detail	Job Zone				
	Work Styles		Attention to Detail		
Dependability	,		Dependability		
Self Control					
Independence			Independence		
Work Values	Work Values		·		
Work Needs Moral Values			Moral Values		
Madian Wagan Hourly \$14.90	Madian Wagas	Hourly	\$14.90		
Median Wages Annual \$30,990			\$30,990		
Projected Growth Slower than average (0-9%)	Projected Growt	th	Slower than average (0-9%)		

Sales representatives, wholesale and manufacturing, except technical and scientific Products

% Projected Employment	2.4%	· .
Skills	Active Listening	Reading Comprehension
	Speaking	Persuasion
	Time Management	Service Orientation
Abilities	Oral Expression	
	Oral Comprehension	
	Speech Clarity	
Work Activities	Establishing and Maintaining Interpers	onal Relationships
	Getting Information	
	Selling or Influencing Others	
	Communicating with Persons Outside	Organization
	Communicating with Supervisors, Pee	rs, or Subordinates
Work Context	Telephone	Frequency of Decision Making
	Contact With Others	Duration of Typical Work Week
	Face-to-Face Discussions	Work With Work Group or Team
	Deal With External Customers	Physical Proximity
	In an Enclosed Vehicle or Equipment	Time Pressure
	Freedom to Make Decisions	Level of Competition
	Structured versus Unstructured Work	Importance of Being Exact or Accurate
	Electronic Mail	Impact of Decisions on Co-workers or Company Results
Job Zone	3	
Work Styles	Integrity	Cooperation
	Dependability	Analytical Thinking
	Initiative	Independence
	Stress Tolerance	Achievement/Effort
	Persistence	Concern for Others
	Self Control	Adaptability/Flexibility
	Attention to Detail	Innovation
Work Values		
Work Needs	Autonomy	
Median Wages Hourly	\$22.78	
Annuai	•	
Projected Growth	Average (10-20%)	

Industrial engineering technicians

% Projected Employment	0.8%		
Skills	Active Listening		
Complex Problem Solving			
	Critical Thinking		
Abilities			
Work Activities	Communicating with Supervisors, Pee	rs, or Subordinates	
	Identifying Objects, Actions, and Events		
	Establishing and Maintaining Interpersonal Relationships		
	Documenting/Recording Information		
	Interacting With Computers		
	Getting Information		
Work Context	Face-to-Face Discussions		
	Contact With Others		
	Work With Work Group or Team		
	Telephone		
	Wear Common Protective or Safety E	quipment	
	Letters and Memos		
	Freedom to Make Decisions		
	Duration of Typical Work Week		
	Time Pressure		
	Structured versus Unstructured Work		
	Frequency of Decision Making		
	Indoors, Environmentally Controlled		
	Importance of Being Exact or Accurate		
	Electronic Mail		
Impact of Decisions on Co-workers or Company Results		Company Results	
	Coordinate or Lead Others		
	Physical Proximity		
	Responsibility for Outcomes and Results		
1-h 7-n-	Exposed to Contaminants		
Job Zone	3	A described 196 (171 esc.) 196 (
Work Styles	Analytical Thinking	Adaptability/Flexibility	
	Dependability	Stress Tolerance	
	Attention to Detail	Innovation	
	Integrity	Cooperation	
	Achievement/Effort	Leadership	
	Initiative	Self Control	
Work Values	Persistence		
Work Needs	Moral Values		
WOIN IVEEUS	Supervision, Human Relations		
Hourly			
Median Wages Annual	·		
Projected Growth	Average (10-20%)		
r rojected Growth	/ (voluge (10-20/0)		

Customer service representatives

% Projected Employment	1.4%		
Skills	Active Listening	Time Management	
	Reading Comprehension	Service Orientation	
	Monitoring	Active Learning	
	Speaking		
Abilities	Oral Comprehension	Speech Recognition	
	Oral Expression	Inductive Reasoning	
	Deductive Reasoning	Near Vision	
	Problem Sensitivity	Written Comprehension	
	Speech Clarity		
Work Activities	Interacting With Computers		
	Getting Information		
	Making Decisions and Solving Problem	ns	
	Documenting/Recording Information		
	Communicating with Supervisors, Pee	rs, or Subordinates	
	Monitor Processes, Materials, or Surro	oundings	
	Identifying Objects, Actions, and Even	ts	
	Processing Information		
Work Context	Contact With Others		
	Telephone		
	Face-to-Face Discussions		
	Indoors, Environmentally Controlled		
	Spend Time Sitting		
	Time Pressure		
	Work With Work Group or Team		
	Electronic Mail		
	Freedom to Make Decisions		
	Deal With External Customers		
	Frequency of Decision Making		
Spend Time Using Your Hands to Handle, C		dle, Control, or Feel Objects, Too	ls, or Controls
	Importance of Being Exact or Accurate)	
	Importance of Repeating Same Tasks		
Job Zone	2		
Work Styles	Cooperation	Adaptability/Flexibility	Integrity
	Dependability	Initiative	Social Orientation
	Attention to Detail	Concern for Others	Analytical Thinking
	Self Control	Independence	Achievement/Effort
	Stress Tolerance	Persistence	Leadership
Work Values			
Work Needs			
Median Wages Hourly			
Annuai	\$27,490		
Projected Growth	Faster than average (21-35%)		

Industrial truck and tractor operators

% Projected Emplo	yment	1.8%	•	
Skills		Mathematics		
		Active Listening		
		Reading Comprehension		
		Equipment Maintenance		
Abilities		Arm-Hand Steadiness	Control Precision	
		Multilimb Coordination	Static Strength	
		Depth Perception	Trunk Strength	
Work Activities	S	Operating Vehicles, Mechanized Device	es, or Equipment	
		Handling and Moving Objects		
Work Context	t	Spend Time Using Your Hands to Han	dle, Control, or Feel Objects, Tools, or Controls	
		Importance of Being Exact or Accurate		
		Time Pressure		
		Indoors, Not Environmentally Controlle	d	
		Sounds, Noise Levels Are Distracting of	or Uncomfortable	
		Face-to-Face Discussions		
		Work With Work Group or Team		
		Contact With Others		
		Freedom to Make Decisions		
		Exposed to Contaminants		
		Responsible for Others' Health and Safety		
		Wear Common Protective or Safety Ed	uipment	
		In an Open Vehicle or Equipment		
		Frequency of Decision Making		
Job Zone		2		
Work Styles		Dependability	Stress Tolerance	
		Self Control	Adaptability/Flexibility	
		Attention to Detail	Initiative	
		Independence	Integrity	
		Cooperation	Persistence	
Work Values				
Work Needs		Moral Values		
I Wedian Wades —		\$13.02		
		\$27,080		
Projected Growth		Slower than average (0-9%)		

Carpenters

O/ Duningto al Cample, year at	4.70/		
<u> </u>	1.7%		
Skills	Mathematics	Management of Financial Resour	ces
	Time Management	Installation	
	Critical Thinking	Speaking	
	Active Listening	Management of Personnel Resou	rces
	Judgment and Decision Making	Service Orientation	
	Active Learning	Complex Problem Solving	
	Management of Material Resources	Monitoring	
	Quality Control Analysis	Equipment Selection	
	Equipment Maintenance	Instructing	
Abilities	Arm-Hand Steadiness	<u> </u>	
	Trunk Strength		
	Multilimb Coordination		
	Near Vision		
Work Activities	Controlling Machines and Processes		
VV O/N V IOUV NIGO	Judging the Qualities of Things, Service	es or People	
	Monitor Processes, Materials, or Surro		
	Communicating with Supervisors, Peel		
	Coordinating the Work and Activities of		
	•		
	Performing General Physical Activities		
	Getting Information		
	Scheduling Work and Activities	•	
	Communicating with Persons Outside	•	
	Making Decisions and Solving Problen	ns	
	Handling and Moving Objects		
	Inspecting Equipment, Structures, or M	1aterial	
Work Context	Spend Time Standing		
	Spend Time Using Your Hands to Han		s, or Controls
	Wear Common Protective or Safety Ed	quipment	
	Face-to-Face Discussions		
	Exposed to Hazardous Equipment		
	Sounds, Noise Levels Are Distracting of	or Uncomfortable	
	Importance of Being Exact or Accurate	•	
	Freedom to Make Decisions		
	Outdoors, Exposed to Weather		
	Telephone		
	Work With Work Group or Team		
	Structured versus Unstructured Work		
	Contact With Others		
	Very Hot or Cold Temperatures		
		fatu	
	Responsible for Others' Health and Sa	iety	
	Exposed to Contaminants	It -	
	Responsibility for Outcomes and Resu	Its	
	Physical Proximity		
	Extremely Bright or Inadequate Lightin	g	
	Duration of Typical Work Week		
	Exposed to High Places		
	Frequency of Decision Making		
Job Zone	3		
	2		
Work Styles	Attention to Detail	Adaptability/Flexibility	Self Control
	Dependability	Analytical Thinking	Independence
	Persistence	Initiative	Stress Tolerance
	Cooperation	Innovation	Leadership
	Integrity		•
Work Values	· ·		
Work Needs	Moral Values		
Hourhy	\$17.11		
Median Wages Annual	\$35,580		
Projected Growth	Average (10-20%)		
i rojecteu Growth	Average (10-2070)		

Maintenance and repair workers, general

% Projected Employment	1.5%	. •	
Skills	Equipment Maintenance	Active Listening	
	Repairing	Installation	
	Troubleshooting	Equipment Selection	
Abilities	Problem Sensitivity		
Work Activities	Inspecting Equipment, Structures, or M	Material (
	Performing General Physical Activities		
	Repairing and Maintaining Mechanical	Equipment	
Work Context	Face-to-Face Discussions		
	Spend Time Using Your Hands to Han	dle, Control, or Feel Objects, Tools, or Controls	
	Freedom to Make Decisions		
	Telephone		
Contact With Others			
	Spend Time Standing		
	Indoors, Environmentally Controlled		
	Wear Common Protective or Safety Equipment		
Exposed to Minor Burns, Cuts, Bites, or Stings		or Stings	
	Structured versus Unstructured Work		
Job Zone	3		
Work Styles	Dependability	Integrity	
	Attention to Detail	Initiative	
	Cooperation	Analytical Thinking	
	Self Control	Concern for Others	
Work Values			
Work Needs	Moral Values		
Median Wages Hourly	\$15.01		
Annual	\$31,210		
Projected Growth	Average (10-20%)		

General and operations managers

% Projected Employment	1.7%		
Skills	Active Listening	Reading Comprehension	
	Management of Personnel Resources	Speaking	
	Time Management	Management of Financial Resource	ces
	Judgment and Decision Making	Active Listening	
	Monitoring	Persuasion	
Abilities	Oral Expression	Speech Recognition	
	Oral Comprehension	Written Comprehension	
	Problem Sensitivity	Deductive Reasoning	
	Speech Clarity	Inductive Reasoning	
Work Activities	Getting Information		
	Communicating with Supervisors, Peer	rs, or Subordinates	
Work Context	Telephone		
	Duration of Typical Work Week		
	Work With Work Group or Team		
	Face-to-Face Discussions		
	Contact With Others		
	Frequency of Decision Making		
	Freedom to Make Decisions		
	Importance of Being Exact or Accurate		
	Indoors, Environmentally Controlled		
	Impact of Decisions on Co-workers or Company Results		
	Responsibility for Outcomes and Resu	lts	
	Deal With External Customers		
	Structured versus Unstructured Work		
Coordinate or Lead Others			
	Time Pressure		
Electronic Mail			
	Responsible for Others' Health and Sa		
	Deal With Unpleasant of Angry People		
1-1-7	Letters and Memos		
Job Zone Work Styles	4 Depends bility	Cooperation	Copiel Orientation
Work Styles	Dependability	Cooperation	Social Orientation
	Leadership	Concern for Others	Adaptability/Flexibility
	Integrity	Analytical Thinking	Innovation
	Attention to Detail	Independence	Persistence
	Initiative	Stress Tolerance	Achievement/Effort
Work Values	Self Control		
Work Values Work Needs			
Hourly	\$39.17		
Median Wages Hourly Annual	\$81,480		
Projected Growth	Average (10-20%)		
r rojecied Growth	Average (10-20/0)		

Packers and packagers, hand

% Projected Employment	1.4%
Skills	
Abilities	Handling and Moving Objects
	Performing General Physical Activities
Work Activities	
Work Context	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Contact With Others
	Face-to-Face Discussions
	Spend Time Making Repetitive Motions
	Physical Proximity
Job Zone	1
Work Styles	Attention to Detail
	Cooperation
	Dependability
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$8.36
Annual	\$17,390
Projected Growth	Average (10-20%)

Machinists

% Projected Employ	yment	1.2%		
Skills		Operation and Control	Troubleshooting	
		Operation Monitoring	Reading Comprehension	
		Mathematics	Quality Control Analysis	
		Equipment Selection	Equipment Maintenance	
Abilities		Problem Solving		
		Arm-Hand Steadiness		
		Information Ordering		
		Near Vision		
Work Activities	S	Controlling Machines and Processes		
		Communicating with Supervisors, Pee		
Work Context	!	Wear Common Protective or Safety Ed	quipment	
		Sounds, Noise Levels Are Distracting	or Uncomfortable	
		Spend Time Using Your Hands to Han	dle, Control, or Feel Objects, Tools, or Controls	
	Importance of Being Exact or Accurate			
		Face-to-Face Discussions		
		Spend Time Standing		
		Exposed to Hazardous Equipment		
		Indoors, Not Environmentally Controlled		
	Contact With Others			
		Time Pressure		
		Freedom to Make Decisions		
		Frequency of Decision Making		
		Duration of Typical Work Week		
		Responsibility for Outcomes and Resu	lts	
Job Zone	ob Zone 3			
Work Styles Attention to Detail				
		Analytical Thinking		
Dependability				
Work Values				
Work Needs		Moral Values		
Median Wages -	Hourly	\$16.51		
ividulati vvages	Annual	\$34,350		
Projected Growth		Slower than average (0-9%)		

Business operation specialists, all other

% Projected Emplo	ment 0.6%
Skills	
Abilities	
Work Activitie	
Work Contex	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages -	Hourly \$26.22
_	Annual \$54,550
Projected Grov	th Faster than average (21-35%)

Multiple machine tool setters, operators, and tenders, metal and plastic

% Projected Employment	1.1%		
Skills	Quality Control Analysis	Troubleshooting	
	Operation and Control	Learning Strategies	
	Repairing	Critical Thinking	
	Equipment Maintenance	Coordination	
	Operation Monitoring		
Abilities	Control Precision		
	Information Ordering		
	Manual Dexterity		
Work Activities	Controlling Machines and Processes		
	Repairing and Maintaining Mechanical	Equipment	
	Getting Information		
	Handling and Moving Objects		
	Inspecting Equipment, Structures, or M		
Work Context	Wear Common Protective or Safety Ed	uipment	
	Exposed to Contaminants		
	Sounds, Noise Levels Are Distracting of	or Uncomfortable	
	Spend Time Using Your Hands to Hand	dle, Control, or Feel Objects, Tools, or Controls	
	Duration of Typical Work Week		
	Exposed to Hazardous Equipment		
	Face-to-Face Discussions		
	Pace Determined by Speed of Equipment		
	Importance of Being Exact or Accurate		
	Spend Time Standing		
	Time Pressure		
	Work With Work Group or Team		
	Contact With Others		
	Exposed to Minor Burns, Cuts, Bites, o	or Stings	
Job Zone	2		
Work Styles	Attention to Detail		
	Dependability		
	Independence		
	Initiative		
	Persistence		
Work Values			
Work Needs	Moral Values		
Median Wages Hourly	\$14.32		
Annuai	\$29,780		
Projected Growth	Slower than average (0-9%)		

Industrial production managers

0/5///5//	•	ction managers		
% Projected Employmen				
Skills	Active Listening	Monitoring		
	Judgment and Decision Making	Time Management		
	Critical Thinking	Complex Problem Solving		
	Reading Comprehension	Speaking		
	Management of Personnel Resources	Instructing		
	Coordination			
Abilities	Oral Comprehension	Problem Sensitivity		
	Oral Expression	Written Comprehension		
	Inductive Reasoning	Deductive Reasoning		
Work Activities	Communicating with Supervisors, Pee	rs, or Subordinates		
	Guiding, Directing, and Motivating Sub	oordinates		
	Making Decisions and Solving Probler			
	Coordinating the Work and Activities of			
	Organizing, Planning, and Prioritizing			
	Scheduling Work and Activities			
	Identifying Objects, Actions, and Even	ts		
Work Context	Face-to-Face Discussions			
	Telephone			
	Freedom to Make Decisions			
	Contact With Others			
	Structured versus Unstructured Work			
	Responsibility for Outcomes and Resu	ults		
	Work With Work Group or Team			
	Electronic Mail			
	Indoors, Environmentally Controlled			
	Coordinate or Lead Others			
	Duration of Typical Work Week			
	Frequency of Decision Making			
	Time Pressure			
	Impact of Decisions on Co-workers or Company Results			
	Importance of Being Exact or Accurate Responsibility for Others' Health and Safety			
	Letters and Memos	balety		
Job Zone	4			
Work Styles	Leadership	Cooperation	Persistence	
Work Glyles	Attention to Detail	Self Control		
		Stress Tolerance	Analytical Thinking Concern for Others	
	Adaptability/Flexibility		Innovation	
	Integrity	Independence Achievement/Effort		
	Dependability		Social Orientation	
Work Values	Initiative	Achievement/Effort		
	Independence	Company Policies and Practices		
Work Needs	Authority	Company Policies and Practices		
	Autonomy	Compensation		
	Activity	Creativity		
,,,	Responsibility			
Median Wages Hour				
Annu				
Projected Growth	Slower than average (0-9%)			

Purchasing agents, except wholesale, retail, and farm products

% Projected Employment	0.9%	, , ,	
Skills	Speaking		
	Active Listening		
	Critical Thinking		
	Judgment and Decision Making		
Abilities	Oral Expression	Problem Sensitivity	
	Oral Comprehension	Speech Clarity	
	Inductive Reasoning	Written Comprehension	
	Deductive Reasoning	·	
Work Activities	Communicating with Supervisors, Pee	rs, or Subordinates	
	Interacting With Computers		
	Getting Information		
	Communicating with Persons Outside	Organization	
	Organizing, Planning, and Prioritizing	Work	
	Establishing and Maintaining Interpers	onal Relationships	
	Making Decisions and Solving Problem	ns	
	Processing Information		
	Monitor Processes, Materials, or Surro	oundings	
	Performing Administrative Activities		
Work Context	Telephone		
	Importance of Being Exact or Accurate		
	Structured versus Unstructured Work		
	Contact With Others		
	Electronic Mail		
	Time Pressure		
	Indoors, Environmentally Controlled		
	Freedom to Make Decisions		
	Work With Work Group or Team		
	Face-to-Face Discussions		
	Spend Time Sitting		
	Frequency of Decision Making		
Job Zone	3		
Work Styles	Integrity	Initiative	
	Attention to Detail	Analytical Thinking	
	Dependability	Concern for Others	
	Cooperation	Independence	
	Self Control	Stress Tolerance	
	Adaptability/Flexibility	Achievement/Effort	
Work Values			
Work Needs	000.57		
Median Wages Hourly	\$23.57		
Annuai			
Projected Growth	Slower than average (0-9%)		

Mechanical engineers

% Projected Employment	0.4%		
Skills	Mathematics	Active Listening	Speaking
	Complex Problem Solving	Time Management	Operations Analysis
	Critical Thinking	Judgment and Decision Making	Coordination
	Reading Comprehension	Writing	Active Learning
	Science	ŭ	G
Abilities	Oral Comprehension	Near Vision	
	Problem Sensitivity	Deductive Reasoning	
	Written Comprehension	Inductive Reasoning	
	Oral Expression	Information Ordering	
Work Activities	Making Decisions and Solving Probler	ns	
	Interacting With Computers		
	Getting Information		
	Communicating with Supervisors, Pee	rs, or Subordinates	
Work Context	Indoors, Environmentally Controlled	·	
	Face-to-Face Discussions		
	Electronic Mail		
	Freedom to Make Decisions		
	Work With Work Group or Team		
	Telephone		
	Contact With Others		
	Importance of Being Exact or Accurate	e	
	Duration of Typical Work Week		
	Letters and Memos		
	Impact of Decisions on Co-workers or	Company Results	
	Structured versus Unstructured Work		
	Frequency of Decision Making		
	Time Pressure		
	Coordinate or Lead Others		
Job Zone	4		
Work Styles	Attention to Detail	Achievement/Effort	
	Cooperation	Adaptability/Flexibility	
	Dependability	Analytical Thinking	
	Leadership		
Work Values	Independence		
	Achievement		
Work Needs	Autonomy	Social Status	
	Ability Utilization	Working Conditions	
	Responsibility	Activity	
	Creativity	Security	
	Achievement		
Median Wages Hourly	\$32.49		
Annuai			
Projected Growth	Average (10-20%)		

Painting, coating, and decorating workers

% Projected Employment	0.9%
Skills	Active Listening
	Speaking
Abilities	
Work Activities	
Work Context	Exposed to Contaminants
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Spend Time Standing
	Time Pressure
	Spend Time Making Repetitive Motions
	Importance of Being Exact or Accurate
	Contact With Others
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Indoors, Not Environmentally Controlled
	Spend Time Bending or Twisting the Body
	Wear Common Protective or Safety Equipment
	Face-to-Face Discussions
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Adaptability/Flexibility
	Innovation
	Independence
	Persistence
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$10.89
Annual	+ 7
Projected Growth	Slower than average (0-9%)

Production, planning, and expediting clerks

% Projected Employment	1.0%		
Skills	Active Listening		
	Reading Comprehension		
	Coordination		
	Speaking		
Abilities	Written Comprehension		
Work Activities	Getting Information		
	Communicating with Supervisors, Pee	ers, or Subordinates	
	Interacting With Computers		
	Organizing, Planning, and Prioritizing	Work	
	Identifying Objects, Actions, and Even	ts	
	Monitor Processes, Materials, or Surro	pundings	
	Scheduling Work and Activities		
	Making Decisions and Solving Probler	ms	
Work Context	Face-to-Face Discussions		
	Telephone		
	Indoors, Environmentally Controlled		
	Time Pressure		
	Electronic Mail		
	Frequency of Decision Making		
	Freedom to Make Decisions		
	Importance of Being Exact or Accurate	e	
	Work With Work Group or Team		
	Contact With Others		
	Impact of Decisions on Co-workers or Company Results		
	Duration of Typical Work Week		
	Structured versus Unstructured Work		
	Importance of Repeating Same Tasks		
	Responsibility for Outcomes and Results		
	Deal With External Customers		
	Exposed to Contaminants		
Job Zone	2		
Work Styles	Attention to Detail	Persistence	
	Dependability	Adaptability/Flexibility	
	Cooperation	Self Control	
	Stress Tolerance	Achievement/Effort	
	Independence	Integrity	
144 () ()	Initiative	Analytical Thinking	
Work Values			
Work Needs	#40.07		
Median Wages Hourly			
Annuai	+ - /		
Projected Growth	Slower than average (0-9%)		

Engineering managers

% Projected Employment	0.4%	
Skills	Reading Comprehension	Active Learning
	Mathematics	Coordination
	Active Listening	Operations Analysis
	Critical Thinking	Judgment and Decision Making
	Complex Problem Solving	Time Management
Abilities	Oral Comprehension	Information Ordering
7.10.11.00	Written Comprehension	Speech Clarity
	Inductive Reasoning	Near Vision
	Oral Expression	Problem Sensitivity
	Speech Recognition	Written Expression
	Deductive Reasoning	William Expression
Work Activities	Communicating with Supervisors, Pee	rs or Subordinates
Trong tourned	Making Decisions and Solving Problem	
	Getting Information	
	Communicating with Persons Outside	Organization
	Updating and Using Relevant Knowled	
	Coordinating the Work and Activities o	
	Establishing and Maintaining Interpers	
Work Context	Duration of Typical Work Week	onal redutionompo
Tom Comen	Telephone	
	Face-to-Face Discussions	
	Electronic Mail	
	Freedom to Make Decisions	
	Structured versus Unstructured Work	
	Frequency of Decision Making	
	Indoors, Environmentally Controlled	
	Contact With Others	
	Importance of Being Exact or Accurate	
	Impact of Decisions on Co-workers or	
	Indoors, Not Environmentally Controlle	
	Coordinate or Lead Others	, and a second s
	Letters and Memos	
	Responsible for Others' Health and Sa	fety
	Time Pressure	nety
	Work With Work Group or Team	
Job Zone	5	
Work Styles	Analytical Thinking	Stress Tolerance
Work Olylos	Dependability	Self Control
	Attention to Detail	Persistence
	Integrity	Adaptability/Flexibility
	Achievement/Effort	Cooperation
Work Values	Independence	Cooperation
Tronk values	Achievement	
Work Needs	Autonomy	Working Conditions
	Compensation	Achievement
	Authority	Activity
	Ability Utilization	Responsibility
	Company Policies and Practices	Security
Madian Wassa Hourly	\$48.44	
Median Wages Annual		
Projected Growth	Average (10-20%)	
.,		

Welding, soldering, and brazing machine setters, operators, and tenders

% Projected Employment	0.8%
Skills	
Abilities	
Work Activities	Control Precision
Work Context	Wear Common Protective or Safety Equipment
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Spend Time Making Repetitive Motions
	Face-to-Face Discussions
	Exposed to Contaminants
	Indoors, Not Environmentally Controlled
	Time Pressure
	Importance of Being Exact or Accurate
	Spend Time Bending or Twisting the Body
	Contact With Others
	Frequency of Decision Making
	Pace Determined by Speed of Equipment
	Exposed to Minor Burns, Cuts, Bites, or Stings
	Duration of Typical Work Week
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Cooperation
	Concern for Others
Work Values	
Work Needs	Moral Values
	Independence
Median Wages Hourly	\$14.63
Annual	\$30,430
Projected Growth	Slower than average (0-9%)

Truck drivers, light or delivery services

% Projected Employme	nt 0.7%
Skills	
Abilities	
Work Activities	Operating Vehicles, Mechanized Devices, or Equipment
	Getting Information
	Handling and Moving Objects
	Performing for or Working Directly with the Public
	Performing General Physical Activities
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Outdoors, Exposed to Weather
	Contact With Others
	In an Enclosed Vehicle or Equipment
	Time Pressure
	Telephone
	Face-to-Face Discussions
	Deal With External Customers
	Importance of Being Exact or Accurate
	Duration of Typical Work Week
	Physical Proximity
	Responsible for Others' Health and Safety
	Exposed to Contaminants
	Work With Work Group or Team
	Very Hot or Cold Temperatures
	Freedom to Make Decisions
	Outdoors, Under Cover
	Wear Common Protective or Safety Equipment
	Letters and Memos
Job Zone	2
Work Styles	Integrity
	Dependability
	Independence
	Attention to Detail
Work Values	
Work Needs	Independence
Median Wages Hour	
Annu	
Projected Growth	Average (10-20%)

Cutters and trimmers, hand

% Projected Employment	0.3%
Skills	
Abilities	Manual Dexterity
	Visualization
	Wrist-Finger Speed
Work Activities	Handling and Moving Objects
	Controlling Machines and Processes
	Performing General Physical Activities
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Exposed to Hazardous Equipment
	Spend Time Standing
Job Zone	1
Work Styles	
Work Values	
Work Needs	Moral Values
	Independence
Median Wages Hourly	\$10.50
Annual	\$21,840
Projected Growth	Slower than average (0-9%)

Janitors and cleaners, except maids and housekeeping cleaners

% Projected Employment	0.6%		
Skills	Reading Comprehension		
Abilities			
Work Activities			
Work Context	Spend Time Standing		
	Exposed to Contaminants		
	Face-to-Face Discussions		
	Indoors, Environmentally Controlled		
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
	Contact With Others		
	Spend Time Walking and Running		
	Spend Time Bending or Twisting the Body		
	Wear Common Protective or Safety Equipment		
Job Zone	1		
Work Styles	Dependability		
	Self Control		
	Cooperation		
	Attention to Detail		
	Concern for Others		
	Integrity		
	Independence		
Work Values			
Work Needs	Moral Values		
Median Wages Hourly	\$9.32		
Annual	\$19,390		
Projected Growth	Average (10-20%)		

Accountants and auditors

% Projected Employment	0.6%			
Skills	Mathematics	Time Management		
GNIIIS	Active Listening	Active Learning		
	Critical Thinking	Reading Comprehension		
	Monitoring	Writing		
	Judgment and Decision Making	vviiding		
Abilities	Problem Sensitivity	Inductive Reasoning	Problem Sensitivity	
Abilities	Deductive Reasoning	Mathematical Reasoning	Number Facility	
	Information Ordering	Written Comprehension	Speech Clarity	
	Oral Expression	Near Vision	Speech Recognition	
	Written Expression	Oral Comprehension	Information Ordering	
Work Activities	Interacting With Computers	Grai Comprehension	miorination Gracing	
TVOIN / TOUVILLOS	Analyzing Data or Information			
	Processing Information			
	Getting Information			
	Documenting/Recording Information			
	Establishing and Maintaining Interpers	onal Relationships		
	Organizing, Planning, and Prioritizing			
	Communicating with Supervisors, Pee			
	Making Decisions and Solving Problem			
	Interpreting the Meaning of Information			
	Evaluating Information to Determine C			
	Identifying Objects, Actions, and Even			
	Monitor Processes, Materials, or Surro			
	Judging the Qualities of Things, Service			
	Updating and Using Relevant Knowled			
Work Context	Telephone	<u> </u>		
Tom Comen	Electronic Mail			
	Indoors, Environmentally Controlled			
	Face-to-Face Discussions			
	Structured versus Unstructured Work			
	Spend Time Sitting			
	Freedom to Make Decisions			
	Importance of Being Exact or Accurate			
	Work With Work Group or Team			
	Letters and Memos			
	Contact With Others			
	Frequency of Decision Making			
	Time Pressure			
	Impact of Decisions on Co-workers or	Company Results		
	Duration of Typical Work Week	Company Results		
	Importance of Repeating Same Tasks			
	Consequence of Error			
Job Zone	4			
Work Styles	Attention to Detail	Adaptability/Flexibility		
	Dependability	Independence		
	Integrity	Self Control		
	Analytical Thinking	Persistence		
	Stress Tolerance	Concern for Others		
	Cooperation	Initiative		
	Achievement/Effort	Leadership		
Work Values	Working Conditions	•		
Work Needs	Working Conditions	Activity		
	Security	Ability Utilization		
	Compensation	Social Status		
Madian Wagaa Hourly	\$25.10			
Median Wages Annual				
Projected Growth	Faster than average (21-35%)			
	y \			

Cost estimators

	Cost esti			
% Projected Employment	0.7%			
Skills	Active Listening	Active Learning		
	Reading Comprehension	Speaking		
	Mathematics	Critical Thinking		
	Time Management	Equipment Selection		
	Writing	Complex Problem Solving		
	Management of Personnel Resources	Coordination		
Abilities	Oral Comprehension			
	Oral Expression			
	Information Ordering			
Work Activities	Scheduling Work and Activities			
	Communicating with Persons Outside	Organization		
	Getting Information	- 0		
	Communicating with Supervisors, Peer	rs, or Subordinates		
	Establishing and Maintaining Interperse			
		stics of Products, Events, or Information		
	Performing for or Working Directly with			
	Making Decisions and Solving Problem			
	Coordinating the Work and Activities of			
	Organizing, Planning, and Prioritizing V			
	Resolving Conflicts and Negotiating wi			
	Selling or Influencing Others	ui Ouicis		
Work Context	Telephone			
Work Context	Face-to-Face Discussions			
		Freedom to Make Decisions		
	Structured versus Unstructured Work			
	Impact of Decisions on Co-workers or Company Results			
	Contact With Others			
	Duration of Typical Work Week			
	Work With Work Group or Team			
	Importance of Being Exact or Accurate			
	Frequency of Decision Making			
	Time Pressure			
	Deal With External Customers			
	Indoors, Environmentally Controlled			
	Coordinate or Lead Others			
	Responsibility for Outcomes and Resul	lts		
	Electronic Mail			
	Letters and Memos			
	Frequency of Conflict Situations			
Job Zone	4			
Work Styles	Attention to Detail			
	Dependability			
	Integrity			
	Cooperation			
	Concern for Others			
	Independence			
Work Values				
Work Needs	Working Conditions			
Median Wages Hourly	\$25.01			
	\$52,020			
Projected Growth	Average (10-20%)			

Sewing machine operators

% Projected Employment	0.5%
Skills	
Abilities	
Work Activities	
Work Context	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Time Pressure
	Importance of Being Exact or Accurate
	Spend Time Making Repetitive Motions
	Spend Time Sitting
	Pace Determined by Speed of Equipment
	Physical Proximity
Job Zone	1
Work Styles	Attention to Detail
	Dependability
Work Values	
Work Needs	Moral Values
	Activity
	Independence
Median Wages Hourly	\$8.82
Annual	\$18,340
Projected Growth	Much slower than average (negative growth)

Grinding, lapping, polishing, and buffing machine tool setters, operators, and t

% Projected Emplo		0.5%		
Skills		Quality Control Analysis		
Abilities		Control Precision		
Work Activities	s	Controlling Machines and Processes		
		Handling and Moving Objects		
		Monitor Processes, Materials, or Surroundings		
		Inspecting Equipment, Structures, or Material		
		Getting Information		
		Making Decisions and Solving Problems		
Work Contex	:t	Exposed to Contaminants		
		Face-to-Face Discussions		
		Wear Common Protective or Safety Equipment		
		Importance of Being Exact or Accurate		
		Exposed to Hazardous Equipment		
		Indoors, Environmentally Controlled		
		Work With Work Group or Team		
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls		
		Contact With Others		
		Sounds, Noise Levels Are Distracting or Uncomfortable		
		Pace Determined by Speed of Equipment		
		Time Pressure		
		Spend Time Standing		
		Structured versus Unstructured Work		
		Freedom to Make Decisions		
		Importance of Repeating Same Tasks		
Job Zone		2		
Work Styles		Attention to Detail		
		Dependability		
		Adaptability/Flexibility		
Work Values	3			
Work Needs		Moral Values		
		Independence		
		Activity		
I Wedian Wades —	Hourly	\$13.34		
Wouldn Wages	Annual	\$27,740		
Projected Grow	vth	Much slower than average (negative growth)		

Medical scientists, except epidemiologists

% Projected Employment	4.0%				
Skills	Reading Comprehension	Instructing	Speaking		
	Science	Time Management	Monitoring		
	Active Listening	Critical Thinking	Learning Strategies		
	Active Learning	Judgment and Decision Making	Coordination		
	Writing	Complex Problem Solving			
Abilities	Oral Comprehension	Oral Expression	Written Expression		
	Inductive Reasoning	Deductive Reasoning	Near Vision		
	Written Comprehension	Problem Sensitivity	Speech Clarity		
Work Activities	Getting Information	1 Toblem Conclusing	Special Clarity		
	Processing Information				
	Making Decisions and Solving F	Problems			
	Updating and Using Relevant Ki				
	Interacting With Computers	no mougo			
	Documenting/Recording Information	ation			
	Analyzing Data or Information	30011			
	Identifying Objects, Actions, and	1 Events			
		mine Compliance with Standards			
	Interpreting the Meaning of Infor				
	Communicating with Persons O				
	Communicating with Supervisor				
	Judging the Qualities of Things,				
	Organizing, Planning, and Priori				
	Establishing and Maintaining Int				
	Monitor Processes, Materials, o				
Work Context	Indoors, Environmentally Contro				
Work Cornext	Face-to-Face Discussions	люч			
	Telephone				
	Duration of Typical Work Week				
	Electronic Mail				
	Work With Work Group or Team Freedom to Make Decisions				
	Responsibility for Outcomes and Results				
	Structured versus Unstructured Work				
		Coordinate or Lead Others			
	Importance of Being Exact or Accurate				
	Contact With Others				
	Responsible for Others' Health and Safety Letters and Memos				
	Deal With External Customers				
Job Zone	5				
Work Styles	Integrity	Initiative	Innovation		
WOIN GLYICS	Persistence	Stress Tolerance	Adaptability/Flexibility		
	Attention to Detail	Cooperation	Leadership		
	Analytical Thinking	Dependability	Independence		
	Achievement/Effort	Self Control	Social Orientation		
Work Values	Achievement	Jeli Cultiul	Jouan Onemation		
WOIN VAIUES	Independence				
	•				
	Working Conditions				
Work Needs	Recognition Achievement	Componention			
WOIN INCOM	Social Status	Compensation			
		Activity			
	Ability Utilization	Working Conditions			
	Security	Recognition			
	Responsibility	Creativity			
		Variety			
	Autonomy				
Median Wages Hourly	\$29.68				
Median Wages Hourly Annual Projected Growth	\$29.68	······			

Chemists

Skills Science Critical Thinking	
Complex Problem Solving Speaking Reading Comprehension Equipment Selection Quality Control Analysis Troubleshooting Writing Mathematics Time Management Judgment and Decision Making	
Complex Problem Solving Speaking Reading Comprehension Equipment Selection Quality Control Analysis Troubleshooting Writing Mathematics Time Management Judgment and Decision Making	
Reading Comprehension Equipment Selection Quality Control Analysis Troubleshooting Writing Mathematics Time Management Judgment and Decision Making	
Quality Control Analysis Troubleshooting Writing Mathematics Time Management Judgment and Decision Making	
Writing Mathematics Time Management Judgment and Decision Making	
Time Management Judgment and Decision Making	
Active Listening Coordination	
Active Learning	
Abilities Inductive Reasoning	
Deductive Reasoning	
Oral Expression	
Oral Comprehension	
Information Ordering	
Work Activities Interacting With Computers	
Getting Information	
Processing Information	
Work Context Wear Common Protective or Safety Equipment	
7 1 1	
Face-to-Face Discussions	
Freedom to Make Decisions	
Structured versus Unstructured Work	
Indoors, Environmentally Controlled	
Exposed to Hazardous Conditions	
Telephone	
Importance of Being Exact or Accurate	
Coordinate or Lead Others	
Impact of Decisions on Co-workers or Company Results	
Responsibility for Outcomes and Results	
Electronic Mail	
Work With Work Group or Team	
Contact With Others	
Level of Competition	
Frequency of Decision Making	
Exposed to Contaminants	
Job Zone 4	
Work Styles Integrity	
Dependability	
Attention to Detail	
Analytical Thinking	
Initiative	
Achievement/Effort	
Independence	
Cooperation	
Persistence	
Innovation	
Adaptability/Flexibility	
Stress Tolerance	
Work Values Achievement	
Independence	
Working Conditions	
Work Needs Ability Utilization Moral Values	
Creativity Independence	
Responsibility Company Policies and Practices	
Autonomy Compensation	
Security Working Conditions	
Achievement Working Conditions	
Median Wages Hourly \$27.83	
Annual \$57,890 Projected Growth Slower than average (0-9%)	

Business operation specialists, all other

% Projected Emp	oloyment	2.6%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone)	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages	Hourly	\$26.22
Wedian Wages	Annual	\$54,550
Projected Gre	owth	Faster than average (21-35%)

Biological technicians

% Projected Employm	nent 2.9%
Skills	Science
	Reading Comprehension
	Instructing
	Active Learning
Abilities	Information Ordering
	Problem Sensitivity
Work Activities	Interacting With Computers
	Documenting/Recording Information
	Processing Information
	Updating and Using Relevant Knowledge
	Identifying Objects, Actions, and Events
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Evaluating Information to Determine Compliance with Standards
Work Context	Electronic Mail
	Indoors, Environmentally Controlled
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Telephone
	Wear Common Protective or Safety Equipment
	Contact With Others
	Importance of Repeating Same Tasks
	Time Pressure
	Coordinate or Lead Others
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Job Zone	4
Work Styles	Attention to Detail
	Dependability
	Integrity
Work Values	
Work Needs	
Median Wages Hou	
Ann	ual \$34,270
Projected Growth	Average (10-20%)

Mixing and blending machine setters, operators, and tenders

% Projected Employment	2.90/
% Projected Employment Skills	
Skills	Operation and Control
	Equipment Maintenance
	Operation Monitoring
	Active Listening The Head and the second sec
	Troubleshooting
	Active Learning
	Reading Comprehension
	Quality Control Analysis
	Equipment Selection
Abilities	
Work Activities	Inspecting Equipment, Structures, or Material
	Controlling Machines and Processes
	Documenting/Recording Information
	Handling and Moving Objects
	Getting Information
Work Context	Wear Common Protective or Safety Equipment
	Exposed to Contaminants
	Face-to-Face Discussions
	Responsible for Others' Health and Safety
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Importance of Being Exact or Accurate
	In an Open Vehicle or Equipment
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Standing
	Exposed to Hazardous Conditions
	Contact With Others
	Work With Work Group or Team
	Time Pressure
	Duration of Typical Work Week
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Cooperation
	Integrity
Work Values	
Work Needs	Moral Values
Madian Wagas Hourly	\$13.89
Median Wages Annual	\$28,890
Projected Growth	Slower than average (0-9%)

Chemical equipment operators and tenders

### Skills Skills		Chemical equipment operators and tenders
Operation and Control Troubleshooting Instructing Active Listening Monitoring Reading Comprehension Equipment Maintenance Coordination Complex Problem Solving Abilities Oral Comprehension Complex Problem Solving Oral Comprehension Complex Problem Solving Abilities Oral Comprehension Communicating With Computers Documenting/Recording Information Communicating with Supervisors, Peers, or Subordinates Inspecting Equipment, Structures, or Material Processing Information Evaluating Information to Determine Compliance with Standards Identifying Objects, Actions, and Events Operating Vehicles, Mechanized Devices, or Equipment Getting Information Analyzing Data or Information Monitor Processes, Materials, or Surroundings Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Go-workers or Company Results Frequency of Decision Making Importance of Seing Exact or Accurate Responsible for Others Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Content Exposed to Content Exposed to Content Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability-Flexibility Work Nalues Work Nalues Median Wages	% Projected Employment	
Instructing Active Listening Monitoring Reading Comprehension Equipment Maintenance Coordination Complex Problem Solving Abilities Oral Comprehension Work Activities Ocntrolling Machines and Processes Performing General Physical Activities Interacting With Computers Documenting/Recording Information Communicating with Supervisors, Peers, or Subordinates Inspecting Equipment, Structures, or Material Processing Information Evaluating Information Evaluating Information to Determine Compliance with Standards Identifying Objects, Actions, and Events Operating Vehicles, Mechanized Devices, or Equipment Getting Information Analyzing Data or Information Monitor Processes, Materials, or Surroundings Work Context Wear Common Protective or Safety Equipment Facet-or-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work Will Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Work Values Work Values Work Values Work Values Work Values Word Walvas Word Values Word Walvas Word Values Word Meds Moral Values Median Wages Median Wages Median Wages Median Wages Median Wages	Skills	
Instructing Active Listening Active Listening Monitoring Reading Comprehension Equipment Maintenance Coordination Complex Problem Solving Abilities Oral Comprehension For Complex Problem Solving Abilities Oral Comprehension For Complex Problem Solving Abilities Oral Comprehension Commission Commission Commission Commission Commission Evaluating Information Evaluating Information Evaluating Information Evaluating Information Evaluating Information Evaluating Information For Evaluating Information For Evaluating Information For Evaluating Information For Evaluating Information For Evaluating Information For Evaluating Information Monitor Processes, Metanizad Devices, or Equipment Getting Information Monitor Processes, Metanizad, or Surroundings Work Context Work Context Ware Common Protective or Safety Equipment Face-to-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With Others' Health and Safety Duration of Typical Work Week Contact With		
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Monitoring Reading Comprehension Equipment Maintenance Coordination Complex Problem Solving Abilities Oral Comprehension Work Activities Oral Comprehension Work Activities Oral Comprehension Work Activities Oral Comprehension For Complex Problem Solving Abilities Oral Comprehension Commonity General Physical Activities Interacting With Computers Documenting/Recording Information Communicating with Supervisors, Peers, or Subordinates Inspecting Equipment, Structures, or Material Processing Information Evaluating Information to Determine Compliance with Standards Identifying Objects, Actions, and Events Operating Vehicles, Mechanized Devices, or Equipment Getting Information Analyzing Data or Information Monitor Processes, Materials, or Surroundings Work Context Wex Common Protective or Safety Equipment Face-to-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Meather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Median Wages Median Wages Median Wages Median Wages		Instructing
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Equipment Maintenance Coordination Complex Problem Solving Abilities Oral Comprehension Work Activities Oral Comprehension Work Activities Oral Comprehension Work Activities Interacting With Computers Documenting Recording Information Communicating with Supervisors, Peers, or Subordinates Inspecting Equipment, Structures, or Material Processing Information Evaluating Information to Determine Compliance with Standards Identifying Objects, Actions, and Events Operating Vehicles, Mechanized Devices, or Equipment Getting Information Analyzing Data or Information Analyzing Data or Information Monitor Processes, Materials, or Surroundings Work Context Wear Common Protective or Safety Equipment Face-to-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Heardrous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Moral Values Median Wages Moral Values Moral Values Moral Values Moral Values Moral Values Moral Values Moral Median Wages Moral Values		Monitoring
Coordination Complex Problem Solving Abilities Oral Comprehension Controlling Machines and Processes Performing General Physical Activities Interacting With Computers Documenting/Recording Information Communicating with Supervisors, Peers, or Subordinates Inspecting Equipment, Structures, or Material Processing Information Evaluating Information to Determine Compliance with Standards Identifying Objects, Actions, and Events Operating Vehicles, Mechanized Devices, or Equipment Getting Information Analyzing Data or Information Monitor Processes, Materials, or Surroundings Work Context Work Values Work Values Work Needs Moral Values Work Needs Moral Values Median Wages Work Median Wages		Reading Comprehension
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Abilities		Coordination
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Work Context		
Face-to-Face Discussions Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Annual \$39,030	Work Context	
Sounds, Noise Levels Are Distracting or Uncomfortable Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Annual \$39,030	Work Context	
Exposed to Contaminants Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Moral Values Moral Values Median Wages Median Wages Median Mages Frequency of Decisions on Co-workers or Company Results Frequency of Decision Accurate Responsible for Others Responsible for Ot		
Impact of Decisions on Co-workers or Company Results Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2		
Frequency of Decision Making Importance of Being Exact or Accurate Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Median Wages Median Wages Hourly \$18.77 Annual \$39,030		
Importance of Being Exact or Accurate Responsible for Others' Health and Safety		
Responsible for Others' Health and Safety Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Values Median Wages Median Wages Hourly \$18.77 Annual \$39,030		
Duration of Typical Work Week Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Median Wages Median Wages Telephone Work Weeks Contact With Others Annual \$19,030		
Contact With Others Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		·
Telephone Work With Work Group or Team Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zon= 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		• •
Work With Work Group or Team		
Freedom to Make Decisions Outdoors, Exposed to Weather Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zone 2 Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Neds Moral Values Median Wages Hourly \$18.77 Annual \$39,030 Stress Tolerance Moral Values		
Job Zone 2 Work Styles Attention to Detail Dependability Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Moral Values Median Wages Hourly Annual \$39,030		·
Consequence of Error Exposed to Hazardous Conditions Electronic Mail Job Zon		
Exposed to Hazardous Conditions Electronic Mail Job Zon= 2		·
Electronic Mail		
Job Zone 2 Work Styles Attention to Detail Dependability Dependability Self Control Integrity Cooperation Cooperation Stress Tolerance Concern for Others Concern for Others Adaptability/Flexibility Work Values Moral Values Median Wages Hourly \$18.77 Annual \$39,030		·
Work Styles Attention to Detail Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		
Dependability Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		
Self Control Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly 418.77 Annual \$39,030	Work Styles	
Integrity Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly 418.77 Annual \$39,030		· · · · ·
Cooperation Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		
Stress Tolerance Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		
Concern for Others Adaptability/Flexibility Work Values Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		
Adaptability/Flexibility Work Values Moral Values Median Wages Hourly Annual \$18.77 Annual \$39,030		
Work Values Work Needs Moral Values Median Wages Hourly Annual \$18.77 Annual \$39,030		
Work Needs Moral Values Median Wages Hourly \$18.77 Annual \$39,030		Adaptability/Flexibility
Median Wages Hourly \$18.77 Annual \$39,030		
Annual \$39,030	Work Needs	Moral Values
- Annuai \$39,030	Median Wagos Hourly	\$18.77
Projected Growth Much slower than average (negative growth)	Annual	
	Projected Growth	Much slower than average (negative growth)

Packaging and filling machine operators and tenders

Of Dusington Louis	Packaging and ming machine operators and tenders
% Projected Employment	0.1%
Skills	The LD Arts
Abilities	Manual Dexterity
	Control Precision
	Near Vision
	Perceptual Speed
	Problem Sensitivity
	Selective Attention
	Static Strength
	Reaction Time
	Arm-Hand Steadiness
	Information Ordering
Work Activities	Communicating with Supervisors, Peers, or Subordinates
	Controlling Machines and Processes
	Inspecting Equipment, Structures, or Material
	Scheduling Work and Activities
	Making Decisions and Solving Problems
	Evaluating Information to Determine Compliance with Standards
	· ·
	Handling and Moving Objects
	Repairing and Maintaining Mechanical Equipment
	Performing General Physical Activities
	Operating Vehicles, Mechanized Devices, or Equipment
	Updating and Using Relevant Knowledge
	Thinking Creatively
	Getting Information
Work Context	Face-to-Face Discussions
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Exposed to Hazardous Equipment
	Spend Time Standing
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Wear Common Protective or Safety Equipment
	Spend Time Making Repetitive Motions
	Exposed to Hazardous Conditions
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Frequency of Decision Making
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Integrity
	Cooperation
Work Values	Ουορσιαιίοπ
Work Needs	Moral Values
	\$11.02
Median Wages Hourly	
Annual Projected Crowth	
Projected Growth	Slower than average (0-9%)

First-line supervisors/managers of production and operating workers

% Projected Employment		p. 5 a a 5 ti	
Skills	Active Listening		Speaking
Orano	Reading Comprehension		Time Management
	Management of Personnel Resou	rcos	Critical Thinking
	Instructing	1003	Judgement and Decision Making
	Monitoring		Coordination
Abilities			Coordination
Abilities	Oral Comprehension		
	Oral Comprehension		
14/aul. Aativitiaa	Problem Sensitivity	D	-Parts
Work Activities	Communicating with Supervisors,		ordinates
	Making Decisions and Solving Pro		
	Coordinating the Work and Activit		
	Guiding, Directing, and Motivating	Subordinates	
	Getting Information		
	Monitor Processes, Materials, or S		
	Organizing, Planning, and Prioritiz		
	Resolving Conflicts and Negotiatin	ng with Others	
	Developing and Building Teams		
	Scheduling Work and Activities		
	Training and Teaching Others		
	Coaching and Developing Others		
	Judging the Qualities of Things, S		ple
	Inspecting Equipment, Structures		
	Establishing and Maintaining Inter	personal Relati	ionships
	Identifying Objects, Actions, and E	vents	
Work Context	Face-to-Face Discussions		
	Contact With Others		
	Duration of Typical Work Week		
	Responsible for Others' Health an	d Safety	
	Responsibility for Outcomes and I	Results	
	Wear Common Protective or Safe	ty Equipment	
	Time Pressure		
	Work With Work Group or Team		
	Telephone		
	Freedom to Make Decisions		
	Frequency of Decision Making		
	Importance of Being Exact or Acc	urate	
	Impact of Decisions on Co-worker		Results
	Structured versus Unstructured W		. 1004.10
	Sounds, Noise Levels Are Distract		ortable
	Electronic Mail	ang or oncomm	s. rabio
	Coordinate or Lead Others		
	Pace Determined by Speed of Eq	uinment	
Job Zone	3	aipinioni	
Work Styles		Initiative	
		Persistence	
	•	Analytical Think	rina
		Concern for Oth	•
		Independence	1010
		Achievement/E	ffort
	0 ,	Innovation	HOIL
	Adaptability/Flexibility	ii ii iUvaliUII	
Work Values	πααριαυπιτή τολιυπτή		
Work Needs	Authority		
WOIN INCEUS			
	Responsibility		
I	Autonomy Co-workers		
	CO-WOIKEIS		
I In			
Median Wages Hourly	\$22.18		
Median Wages Hourly Annual Projected Growth	\$22.18		

Sales representatives, wholesale and manufacturing, technical and scientific products

	ntatives, wholesale and manufacturing, technical and scientific products
% Projected Employment	
Skills	Speaking
	Persuasion
	Active Listening
	Time Management
	Social Perceptiveness
	Service Orientation
	Negotiation
	Reading Comprehension
	Critical Thinking
	Active Learning
Abilities	Oral Expression
	Oral Comprehension
	Speech Clarity
	Speech Recognition
Work Activities	Selling or Influencing Others
	Establishing and Maintaining Interpersonal Relationships
	Communicating with Persons Outside Organization
	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Getting Information
Work Context	Telephone
	Contact With Others
	Duration of Typical Work Week
	Deal With External Customers
	Electronic Mail
	Face-to-Face Discussions
	Structured versus Unstructured Work
	Freedom to Make Decisions
	Impact of Decisions on Co-workers or Company Results
	Level of Competition
	Letters and Memos
	Importance of Being Exact or Accurate
	Work With Work Group or Team
Job Zone	Indoors, Environmentally Controlled 4
Work Styles	Initiative
VVOIK Styles	
	Independence Achievement/Effort
	Persistence Persistence
	Dependability Attacking to Parisity
	Attention to Detail
	Stress Tolerance
	Adaptability/Flexibility
	Integrity
	Self Control
144 4 34 4	Cooperation
Work Values	
Work Needs	Autonomy
	Achievement
Median Wages Hourly	\$29.21
Annuai	\$60,760
Projected Growth	Average (10-20%)

Separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders

% Projected Employment	2.1%
Skills	Operation Monitoring
	Active Listening
Abilities	
Work Activities	Controlling Machines and Processes
	Monitor Processes, Materials, or Surroundings
	Inspecting Equipment, Structures, or Material
	Communicating with Supervisors, Peers, or Subordinates
	Getting Information
	Making Decisions and Solving Problems
	Identifying Objects, Actions, and Events
Work Context	Wear Common Protective or Safety Equipment
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Contact With Others
	Indoors, Not Environmentally Controlled
	Importance of Being Exact or Accurate
	Face-to-Face Discussions
	Duration of Typical Work Week
	Freedom to Make Decisions
	Time Pressure
	Exposed to Hazardous Equipment
	Responsible for Others' Health and Safety
	Pace Determined by Speed of Equipment
	Structured versus Unstructured Work
	Work With Work Group or Team
	Frequency of Decision Making
	Telephone
	Very Hot or Cold Temperatures
	Impact of Decisions on Co-workers or Company Results
	Exposed to High Places
	Exposed to Hazardous Conditions
Job Zone	2
Work Styles	Dependability
	Attention to Detail
	Cooperation
	Independence
	Adaptability/Flexibility
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$16.66
Annual	\$34,650
Projected Growth	Slower than average (0-9%)

Maintenance and repair workers, general

% Projected Emple	ovment	2.1%
Skills		Equipment Maintenance
		Repairing
		Troubleshooting
		Active Listening
		Installation
		Equipment Selection
Abilities		Problem Sensitivity
Work Activitie	es	Inspecting Equipment, Structures, or Material
		Performing General Physical Activities
		Repairing and Maintaining Mechanical Equipment
Work Contex	xt	Face-to-Face Discussions
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
		Freedom to Make Decisions
		Telephone
		Contact With Others
		Spend Time Standing
		Indoors, Environmentally Controlled
		Wear Common Protective or Safety Equipment
		Exposed to Minor Burns, Cuts, Bites, or Stings
		Structured versus Unstructured Work
Job Zone		3
Work Styles	S	Dependability
		Attention to Detail
		Cooperation
		Self Control
		Integrity
		Initiative
		Analytical Thinking
Work Values	c	Concern for Others
Work Needs	_	Moral Values
	S Hourly	\$15.01
Wedian wades —	Annual	\$31,210
Projected Gro		Average (10-20%)
.,		

Computer systems analysts

	Computer systems analysts
% Projected Employment	1.5%
Skills	Active Learning
	Reading Comprehension
	Complex Problem Solving
	Critical Thinking
	Active Listening
	Troubleshooting
	Service Orientation
	Monitoring
	Time Management
	Quality Control Analysis
	Systems Analysis
	Coordination
	Technology Design
	Judgment and Decision Making
	Learning Strategies
44.00	Equipment Selection
Abilities	Oral Comprehension
	Problem Sensitivity
	Inductive Reasoning
	Deductive Reasoning
Work Activities	Interacting With Computers
	Making Decisions and Solving Problems
	Processing Information
	Getting Information
	Updating and Using Relevant Knowledge
	Identifying Objects, Actions, and Events
	Analyzing Data or Information
	Communicating with Supervisors, Peers, or Subordinates
	Thinking Creatively
	Interpreting the Meaning of Information for Others
Work Context	Electronic Mail
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Telephone
	Spend Time Sitting
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Contact With Others
	Duration of Typical Work Week
Job Zone	4
Work Styles	Adaptability/Flexibility
vvoik Siyles	
	Attention to Detail
	Analytical Thinking
	Persistence
	Dependability
	Initiative
	Integrity
Work Values	Independence
	Achievement
Work Needs	Company Policies and Practices
110	Ability Utilization
	Security
	Autonomy
	Responsibility
	Creativity
	Compensation
Median Wages Hourly	\$32.84
Annual	\$68,300
Projected Growth	Faster than average (21-35%)
,	

Managers, all other

ment 1.7%
ourly \$38.06
nual \$79,170
Slower than average (0-9%)

Chemical technicians

Of Designated Free 1	4.70/
% Projected Employment	
Skills	Science
	Reading Comprehension
	Quality Control Analysis
	Mathematics
	Operation Monitoring
	Active Listening
Abilities	Near Vision
	Deductive Reasoning
	Information Ordering
	Written Comprehension
144 (4 4 3) 33	Problem Sensitivity
Work Activities	Documenting/Recording Information
	Processing Information
	Getting Information
	Identifying Objects, Actions, and Events
	Monitor Processes, Materials, or Surroundings
	Analyzing Data or Information
	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Interacting With Computers
	Inspecting Equipment, Structures, or Material
	Organizing, Planning, and Prioritizing Work
Work Context	Wear Common Protective or Safety Equipment
	Indoors, Environmentally Controlled
	Importance of Being Exact or Accurate
	Telephone
	Electronic Mail
	Face-to-Face Discussions
	Time Pressure
	Exposed to Hazardous Conditions
	Freedom to Make Decisions
	Importance of Repeating Same Tasks
	Structured versus Unstructured Work
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
1.1.7	Contact With Others
Job Zone	3
Work Styles	Integrity
	Attention to Detail
	Dependability
	Cooperation
	Independence
	Adaptability/Flexibility
	Analytical Thinking
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$18.51
Annuai	
Projected Growth	Slower than average (0-9%)

Team assemblers

1.7%
Handling and Moving Objects
Controlling Machines and Processes
Communicating with Supervisors, Peers, or Subordinates
Identifying Objects, Actions and Events
Inspecting Equipment, Structures or Material
Getting Information
Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Wear Common Protective or Safety Equipment
Importance of Being Exact or Accurate
Spend Time Making Repetitive Motions
Spend Time Standing
Face-to-Face Discussions
Time Pressure
Work With Work Group or Team
Sounds, Noise Levels Are Distracting or Uncomfortable
2
Attention to Detail
Dependability
\$11.60
\$24,120
Slower than average (0-9%)
001103113311

Natural sciences managers

% Projected Employment	1.7%
Skills	Science
OKIIIS	Critical Thinking
	Reading Comprehension
	Writing
	Active Learning
	Mathematics
Abilities	Time Management Oral Comprehension
Abilities	Oral Expression
	Written Comprehension
	Speech Clarity
	Inductive Reasoning
	Speech Recognition
	Deductive Reasoning
Work Activities	Analyzing Data or Information
Work Activities	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Making Decisions and Solving Problems
	Interacting With Computers
	Documenting/Recording Information
	Processing Information
	Scheduling Work and Activities
Work Context	Electronic Mail
Work Context	Face-to-Face Discussions
	Telephone
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Duration of Typical Work Week
	Coordinate or Lead Others
	Letters and Memos
	Contact With Others
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Frequency of Decision Making
Job Zone	5
Work Styles	Analytical Thinking
Trom Giyloo	Initiative
	Integrity
	Leadership
	Adaptability/Flexibility
	Persistence
	Dependability
	Cooperation
	Independence
Work Values	Independence
Work Needs	Working Conditions
	Autonomy
	Responsibility
	Authority
	Ability Utilization
Madian Mana Hourly	\$44.75
Median Wages Annual	\$93,090
Projected Growth	Average (10-20%)

Inspectors, testers, sorters, samplers, and weighers

% Projected Employment	2.5%
Skills	Quality Control Analysis
	Active Listening
	Reading Comprehension
Abilities	
Work Activities	Documenting/Recording Information
	Getting Information
	Monitor Processes, Materials, or Surroundings
	Inspecting Equipment, Structures, or Material
	Communicating with Supervisors, Peers, or Subordinates
	Judging the Qualities of Things, Services, or People
	Identifying Objects, Actions, and Events
	Evaluating Information to Determine Compliance with Standards
Work Context	Face-to-Face Discussions
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Making Repetitive Motions
	Spend Time Standing
	Duration of Typical Work Week
	Contact With Others
	Physical Proximity
	Importance of Being Exact or Accurate
Job Zone	2
Work Styles	Attention to Detail
	Dependability
	Integrity
	Cooperation
	Independence
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$14.04
Annual	
Projected Growth	Much slower than average (negative growth)

Executive secretaries and administrative assistants

	Executive Secretaries and administrative assistants
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Time Management
	Speaking
Abilities	Oral Comprehension
	Written Comprehension
	Written Expression
	Oral Expression
	Speech Clarity
	Near Vision
Work Activities	Performing Administrative Activities
	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Organizing, Planning, and Prioritizing Work
	Establishing and Maintaining Interpersonal Relationships
	Communicating with Persons Outside Organization
	Documenting/Recording Information
	Identifying Objects, Actions, and Events
Work Context	Telephone
	Contact With Others
	Face-to-Face Discussions
	Electronic Mail
	Letters and Memos
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Structured versus Unstructured Work
	Importance of Repeating Same Tasks
	Spend Time Sitting
	Freedom to Make Decisions
	Deal With External Customers
	Coordinate or Lead Others
	Indoors, Environmentally Controlled
	Time Pressure
Job Zone	3
Work Styles	Cooperation
Work Styles	Attention to Detail
	Dependability
	Integrity Concern for Others
	Self Control
	Adaptability/Flexibility
	Stress Tolerance
	Independence
	Initiative
	Social Orientation
	Innovation
	Achievement/Effort
Manda Mala a	Persistence
Work Values	Marking Conditions
Work Needs	Working Conditions
	Company Policies and Practices
Median Wages Hourly	\$17.29
Annuai	\$35,960
Projected Growth	Average (10-20%)

Industrial production managers

	industrial production ma	ilayers
% Projected Employment	1.3%	
Skills	Active Listening	Monitoring
	Judgment and Decision Making	Time Management
	Critical Thinking	Complex Problem Solving
	Reading Comprehension	Speaking
	Management of Personnel Resources	Instructing
	Coordination	G
Abilities	Oral Comprehension	Problem Sensitivity
	Oral Expression	Written Comprehension
	Inductive Reasoning	Deductive Reasoning
Work Activities	Getting Information	
	Communicating with Supervisors, Peers, or Subo	ordinates
	Guiding, Directing, and Motivating Subordinates	
	Making Decisions and Solving Problems	
	Coordinating the Work and Activities of Others	
	Organizing, Planning, and Prioritizing Work	
	Scheduling Work and Activities	
	Identifying Objects, Actions, and Events	
Work Context	Face-to-Face Discussions	
Work Comext	Telephone	
	Freedom to Make Decisions	
	Contact With Others	
	Structured versus Unstructured Work	
	Responsibility for Outcomes and Results	
	Work With Work Group or Team	
	Electronic Mail	
	Indoors, Environmentally Controlled	
	Coordinate or Lead Others	
	Duration of Typical Work Week	
	Frequency of Decision Making	
	Time Pressure	
	Impact of Decisions on Co-workers or Company	Results
	Importance of Being Exact or Accurate	
	Responsibility for Others' Health and Safety	
=	Letters and Memos	
Job Zone	4	
Work Styles	Leadership	
	Attention to Detail	
	Adaptability/Flexibility	
	Integrity	
	Dependability	
	Initiative	
	Cooperation	
	Self Control	
	Stress Tolerance	
	Independence	
	Achievement/Effort	
	Persistence	
	Analytical Thinking	
	Concern for Others	
	Innovation	
	Social Orientation	
Work Values	Independence	
Work Needs	Authority	
	Autonomy	
1	Activity	
	Responsibility	
	Company Policies and Practices	
	Compensation	
	Creativity	
Madian Wagas Hourly	\$36.34	
Median Wages Annual		
Projected Growth	Slower than average (0-9%)	
· · · · · · · · · · · · · · · · · · ·	<u> </u>	

Packers and packagers, hand

% Projected Employment	1.3%
Skills	
Abilities	
Work Activities	Handling and Moving Objects
	Performing General Physical Activities
Work Context	Spend Time Standing
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Indoors, Environmentally Controlled
	Contact With Others
	Face-to-Face Discussions
	Spend Time Making Repetitive Motions
	Physical Proximity
Job Zone	1
Work Styles	Attention to Detail
	Cooperation
	Dependability
Work Values	
Work Needs	Moral Values
Median Wages Hourly	\$8.36
Annual	\$17,390
Projected Growth	Average (10-20%)

Biochemists and biophysicists

	Diodicinioto dila Diophysioloto	
% Projected Employment	1.3%	
Skills	Science	
	Reading Comprehension	
	Mathematics	
	Critical Thinking	
	Writing	
	Active Learning	
Abilities	Inductive Reasoning	
	Written Comprehension	
	Deductive Reasoning	
	Near Vision	
	Information Ordering	
Work Activities	Identifying Objects, Actions, and Events	
	Getting Information	
	Monitor Processes, Materials, or Surroundings	
	Analyzing Data or Information	
	Documenting/Recording Information	
	Processing Information	
	Updating and Using Relevant Knowledge	
	Making Decisions and Solving Problems	
	Controlling Machines and Processes	
	Interpreting the Meaning of Information for Others	
Work Context	Work Context Indoors, Environmentally Controlled	
	Importance of Being Exact or Accurate	
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls	
Job Zone	5	
Work Styles		
Work Values	Independence	
	Achievement	
	Working Conditions	
Work Needs	Autonomy	
	Ability Utilization	
	Responsibility	
	Independence	
	Creativity	
	Security	
	Achievement	
	Moral Values	
	Social Status	
	Working Conditions	
Median Wages Hourly	\$34.14	
Annual	\$71,000	
Projected Growth	Faster than average (21-35%)	

General and operations managers

Of Projected France	General and operations managers
% Projected Employment	
Skills	Active Listening
	Management of Personnel Resources
	Time Management
	Judgment and Decision Making
	Monitoring
	Reading Comprehension
	Speaking
	Management of Financial Resources
	Active Listening
	Persuasion
Abilities	Oral Expression
	Oral Comprehension
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Written Comprehension
	Deductive Reasoning
	Inductive Reasoning
Work Activities	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
	Duration of Typical Work Week
	Work With Work Group or Team
	Face-to-Face Discussions
	Contact With Others
	Frequency of Decision Making
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Structured versus Unstructured Work
	Coordinate or Lead Others
	Time Pressure
	Electronic Mail
	Responsible for Others' Health and Safety
	Deal With Unpleasant of Angry People
	Letters and Memos
Job Zone	4
Work Styles	Dependability
	Leadership
	Integrity
	Attention to Detail
	Initiative
	Self Control
	Cooperation
	Concern for Others
	Analytical Thinking
	Independence
	Stress Tolerance
	Social Orientation
	Adaptability/Flexibility
	Innovation
	Persistence
Mork Volum	Achievement/Effort
Work Values	
Work Needs	\$20.47
Median Wages Hourly	\$39.17
Annuai	
Projected Growth	Average (10-20%)

Industrial machinery mechanics

C	madatra madmicry medianes
% Projected Employment	1.1%
Skills	Repairing
	Troubleshooting
	Equipment Maintenance
	Equipment Selection
	Installation
	Critical Thinking
	<u> </u>
	Operation Monitoring
A I: 11/1	Reading Comprehension
Abilities	Reaction Time
	Control Precision
	Manual Dexterity
Work Activities	Repairing and Maintaining Mechanical Equipment
	Inspecting Equipment, Structures, or Material
	Handling and Moving Objects
	Getting Information
	Performing General Physical Activities
	Controlling Machines and Processes
	Communicating with Supervisors, Peers, or Subordinates
	Identifying Objects, Actions, and Events
	Operating Vehicles, Mechanized Devices, or Equipment
	Making Decisions and Solving Problems
	Monitor Processes, Materials, or Surroundings
Work Context	Wear Common Protective or Safety Equipment
	Face-to-Face Discussions
	Exposed to Hazardous Equipment
	Duration of Typical Work Week
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Time Pressure
	Spend Time Standing
	Contact With Others
	Exposed to Hazardous Conditions
	Freedom to Make Decisions
	Frequency of Decision Making
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Indoors, Not Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
Job Zone	
	3 Attention to Detail
Work Styles	Attention to Detail
	Dependability
	Independence
	Integrity
	Initiative
	Analytical Thinking
	Persistence
	Cooperation
	Stress Tolerance
	Achievement/Effort
	Adaptability/Flexibility
	Concern for Others
	Innovation
	Self Control
Work Values	
Work Needs	Moral Values
Madian Warras Hourly	\$19.11
Median Wages Annual	\$39,740
Projected Growth	Slower than average (0-9%)
r rojostou Growtin	cional alan arolago (0 070)

Microbiologists

% Projected Employment					
Skills	Science	Active Learning	Equipment Maintenance		
	Reading Comprehension	Time Management	Mathematics		
	Instructing	Complex Problem Solving	Coordination		
	Active Listening	Troubleshooting	Equipment Selection		
	Critical Thinking	<u> </u>	Operations Analysis		
	•	Monitoring			
	Writing	Judgment and Decision Making	Operation Monitoring		
Abilities	Near Vision	Problem Sensitivity			
	Inductive Reasoning	Written Comprehension			
	Information Ordering	Category Flexibility			
Work Activities	Getting Information				
	Documenting/Recording Informa	tion			
	Identifying Objects, Actions, and				
	Monitor Processes, Materials, or				
	Updating and Using Relevant Kn				
	Evaluating Information to Determ				
	Communicating with Supervisors				
	Making Decisions and Solving P	roblems			
	Analyzing Data or Information				
	Interacting With Computers				
	Training and Teaching Others				
	Processing Information				
	Interpreting the Meaning of Information	mation for Others			
		acteristics of Products, Events, or I	nformation		
			mormation		
	Judging the Qualities of Things,				
	Establishing and Maintaining Inte				
	Organizing, Planning, and Priorit				
Work Context	Indoors, Environmentally Contro				
	Importance of Being Exact or Accurate Wear Common Protective or Safety Equipment Electronic Mail Impact of Decisions on Co-workers or Company Results Structured versus Unstructured Work Face-to-Face Discussions				
	Telephone				
	•	Freedom to Make Decisions			
	Exposed to Disease or Infections				
	Responsible for Others' Health a	nd Safety			
	Contact With Others				
Job Zone	4				
Work Styles	Initiative				
	Attention to Detail				
	Dependability				
	Persistence				
	Integrity				
	Achievement/Effort				
	Analytical Thinking				
	Cooperation				
	Leadership				
	Stress Tolerance				
	Adaptability/Flexibility				
Work Values	Independence				
	Achievement				
Work Needs	Autonomy				
	Ability Utilization				
	Independence				
	Responsibility				
	Creativity				
	Working Conditions				
Median Wages Hourly	\$27.34				
Annuai	\$56,870				
Projected Growth	Average (10-20%)				

Computer and information systems managers

	0.00/		
% Projected Employment			
Skills	Reading Comprehension		
	Critical Thinking		
	Active Listening		
	Judgment and Decision Making		
	Active Learning		
	Negotiation		
	Management of Financial Resources		
Abilities	Complex Problem Solving		
Abilities	Problem Sensitivity		
	Oral Expression		
	Oral Comprehension		
	Written Comprehension		
	Deductive Reasoning		
	Near Vision		
	Speech Clarity		
	Inductive Reasoning		
Work Activities	Getting Information		
VVOIX / TOUVILLOS	Interacting With Computers		
	·		
	Identifying Objects, Actions, and Events		
	Interpreting the Meaning of Information for Others		
	Scheduling Work and Activities		
	Making Decisions and Solving Problems		
	Establishing and Maintaining Interpersonal Relationships		
	Thinking Creatively		
Work Context	Telephone		
	Electronic Mail		
	Face-to-Face Discussions		
	Work With Work Group or Team Contact With Others		
	Freedom to Make Decisions		
	Spend Time Sitting		
	Structured versus Unstructured Work		
	Duration of Typical Work Week		
	Indoors, Environmentally Controlled		
	Importance of Being Exact or Accurate		
	Letters and Memos		
loh Zono	Coordinate or Lead Others		
Job Zone	Coordinate or Lead Others 5		
Job Zone Work Styles	Coordinate or Lead Others 5 Dependability		
	Coordinate or Lead Others 5 Dependability Self Control		
	Coordinate or Lead Others 5 Dependability Self Control Integrity		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility		
	Coordinate or Lead Others 5 Dependability Self Control Integrity		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance		
	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort		
Work Styles	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence		
Work Styles Work Values	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Security		
Work Styles Work Values	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Detail Security Autonomy		
Work Styles Work Values	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Compensation		
Work Styles Work Values Work Needs	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Responsibility Fig. 2 Authority Compensation Responsibility		
Work Styles Work Values Work Needs Median Wages Hourly	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Ability Utilization Responsibility \$46.41		
Work Styles Work Values Work Needs	Coordinate or Lead Others 5 Dependability Self Control Integrity Adaptability/Flexibility Persistence Independence Analytical Thinking Leadership Cooperation Attention to Detail Initiative Stress Tolerance Achievement/Effort Innovation Independence Authority Working Conditions Autonomy Ability Utilization Responsibility Fig. 2 Authority Compensation Responsibility		

Life, physical, and social science technicians, all other

% Projected Emp	nloumont	1.00/
	oloyineni	1.070
Skills		
Abilities		
Work Activi	ties	
Work Cont	ext	
Job Zone	Э	
Work Style	es	
Work Valu	es	
Work Nee	ds	
Median Wages	Hourly	\$19.25
wieulaii wages	Annual	\$40,030
Projected Gr	owth	Average (10-20%)

Biomedical engineers

Skills Science Quality Control Analysis Science Speaking Reading Comprehension Troubleshooting Troubleshooting Troubleshooting Troubleshooting Troubleshooting Critical Thinking Judgment and Decision Making Critical Thinking Active Listening Tachnology Design Mathematics Active Learning Strategies Mathematics Active Learning Systems Analysis Active Learning Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Systems Sy	Biomedical engineers			
Speaking Reading Comprehension Time Management Judgment and Decision Making Critical Thinking Judgment and Decision Making Critical Thinking Active Listenting Tachnology Design Mahematics Writing Systems Analysis Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Wisualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Work Activities Inspecting Equipment. Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Frequency of Decision Making Exposed to Discass or Infections Consequence of Error 4 Work Values Work Walluss Work Walluss Work Walluss Work Needs Median Wages #Mouley \$4.54.4 #Mouley Values #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.4 #Mouley Walluss #Mouley \$4.54.54 #Mouley Walluss #Mouley \$4.54.54 #Mouley Walluss #Mouley \$4.54.54 #Mouley Walluss #Mouley Walluss #Mouley Walluss #Mouley	% Projected Employment	0.6%		
Speaking Comprehension Reading Comprehension Time Management Judgment and Decision Making Active Listening Technology Design Mathematics Writing Systems Analysis Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Seansitivity Inductive Reasoning Written Comprehension Oral Comprehension Oral Comprehension Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creativey Estimating the Quantifiable Characteristics of Products, Events, or Information Organizing, Planning, and Prioritizing Work Thinking Creativey Estimating the Quantifiable Characteristics of Products, Events, or Information Communicating with Persons Outside Organization Information Communicating with Persons Outside Organization Information Communicating Work Ordinoled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Integrity Work Values Work Walues	Skills	Science	Quality Control Analysis	
Reading Comprehension Time Management Tirtical Thinking Judgment and Decision Making Active Listening Technology Design Technology Design Writing Active Listening Technology Design Writing Technology Design Writing Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Systems Analysis Active Learning Written Comprehension Problem Sensitivity Inductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Ural Comprehension Ural Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Updating and Using Relevant Knowledge Processing Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Tinking Greatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analysing Detaio or Information Communicating with Persons Outside Organization Information Communicating with Persons Outside Organization Information Information Information Decisions on Co-workers or Company Results Work With Work Croup or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone Job Zone Active Values Work Values Work Naeds Work Naeds Work Naeds Median Wages Houtly \$34.54 Annual \$71,840		Speaking		
Time Management Judgment and Decision Making Active Listening Technology Design Mathematics Writing Systems Analysis Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Wisualization Oral Comprehension Problem Sensitivity Inductive Reasoning Wisualization Oral Comprehension Oral Comprehension Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone Work Values Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Fiexbility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Needs Work Needs Modian Wages Houtly S34.54 Modian Wages Houtly S34.54 Modian Wages		. 5		
Judgment and Decision Making Operations Analysis Active Listening Technology Design Technology Design Mathematics Writing Active Learning Strategies Mathematics Writing Active Learning Systems Analysis Active Learning Systems Analysis Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Identifying Objects, Actions, and Events Interracting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Pace-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Joh Zone 4 Work Styles Dependability Plancibility Stress Tolerance Achievement/Eliort Initiative Self Control Integrity Work Needs Work Needs Median Wages Hourly \$34.54 Median Wages Hourly \$34.54 Median Wages Hourly \$34.54 Median Wages Hourly \$34.54 Median Wages Hourly \$34.54				
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Technology Design Mathematics Writing Systems Analysis Abilities Oral Expression Deductive Reasoning Writen Comprehension Problem Sensitivity Inductive Reasoning Wisualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Oral Comprehension Oral Comprehension Oral Comprehension Oral Comprehension Oral Comprehension Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Walves Work Walves Work Walves Work Walves Work Walves Work Walves Work Walves Median Wages		-	·	
Systems Analysis Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Work Activities Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Weddian Wages Median Wages		S .		
Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Work Context Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Siyles Dependability Flexibility Stress Tolerance Achievement/Efrot Initiative Self Control Integrity Work Needs Mocklan Wages Hourly, \$34.54 Annual \$71,840		=- =		
Abilities Oral Expression Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Oral Comprehension Oral Comprehension Work Activities Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting Writh Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance AchievemenVEffort Initiative Self Control Integrity Work Needs Mocklan Wages Hourly, \$34.54 Annual \$71,840		Writing	Active Learning	
Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Doral Comprehension Oral Comprehension Oral Comprehension Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Work Context Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Initiative Self Control Initiative Self Control Initiative Self Control Initiative Self Control Integrity Work Nieods Work Nieods Median Wages Mackal Musges Mackal Mu		Systems Analysis		
Deductive Reasoning Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Drai Comprehension Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone #Work Styles #Work Values Work Values Work Values Work Nieods Median Wages #Mourly \$34.54 #Annual \$71,840	Abilities	Oral Expression		
Written Comprehension Problem Sensitivity Inductive Reasoning Visualization Voral Comprehension Work Activities Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating With Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Work Context Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability-Texibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Needs Median Wages		Deductive Reasoning		
Problem Sensitivity Inductive Reasoning Visualization Oral Comprehension Work Activities Work Activities Nesting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Inforest Information Communicating with Persons Outside Organization Information Analyzing Data or Information Communicating with Persons Outside Organization Information Analyzing Data or Information Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Needs Median Wages				
Inductive Reasoning Visualization Oral Comprehension Work Activities Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating With Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Work Context Work Context Work Context Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages				
Visualization Oral Comprehension Inspecting Equipment, Structures, or Material Making Decisions and Solving Problems Getting Information Identifying Objects, Actions, and Events Interacting With Computers Communicating with Supervisors, Peers, or Subordinates Documenting/Recording Information Updating and Using Relevant Knowledge Processing Information Organizing, Planning, and Prioritizing Work Thinking Creatively Estimating the Quantifiable Characteristics of Products, Events, or Information Analyzing Data or Information Communicating with Persons Outside Organization Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Enort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
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Indoors, Environmentally Controlled Telephone Face-to-Face Discussions Freedom to Make Decisions Electronic Mail Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error			tside Organization	
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Importance of Being Exact or Accurate Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Structured versus Unstructured Work Contact With Others Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
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Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error ### Job Zone 4 Work Styles		Structured versus Unstructured \	Vork	
Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Contact With Others		
Impact of Decisions on Co-workers or Company Results Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Spend Time Using Your Hands t	o Handle, Control, or Feel Objects, Tools, or Controls	
Work With Work Group or Team Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Frequency of Decision Making Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Exposed to Disease or Infections Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Consequence of Error Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Job Zone 4 Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Work Styles Dependability Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840	loh Zono			
Attention to Detail Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		•		
Cooperation Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840	work Styles			
Analytical Thinking Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Adaptability/Flexibility Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840				
Stress Tolerance Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Analytical Thinking		
Achievement/Effort Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Adaptability/Flexibility		
Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Stress Tolerance		
Initiative Self Control Integrity Work Values Work Needs Median Wages Hourly \$34.54 Annual \$71,840		Achievement/Effort		
Self Control Integrity				
Integrity Work Values Work Needs Hourly \$34.54 Annual \$71,840				
Work Values Work Needs Hourly \$34.54 Annual \$71,840				
Work Needs Median Wages Hourly \$34.54 Annual \$71,840	Mark Values	integrity		
Median Wages Hourly \$34.54 Annual \$71,840				
Median Wages Annual \$71,840		COAEA		
- Annual \$71,840				
Projected Growth Faster than average (21-35%)	- Annuai	. ,		
	Projectea Growth	raster than average (21-35%)		

Customer service representatives

0/ D : : : : :	Customer service representatives
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Monitoring
	Speaking
	Time Management
	Service Orientation
	Active Learning
Abilities	Oral Comprehension
	Oral Expression
	Deductive Reasoning
	Problem Sensitivity
	Speech Clarity
	Speech Recognition
	Inductive Reasoning
	Near Vision
14/ / 4 / 22	Written Comprehension
Work Activities	Interacting With Computers
	Getting Information
	Making Decisions and Solving Problems
	Documenting/Recording Information
	Communicating with Supervisors, Peers, or Subordinates
	Monitor Processes, Materials, or Surroundings
	Identifying Objects, Actions, and Events
	Processing Information
Work Context	Contact With Others
	Telephone
	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Spend Time Sitting
	Time Pressure
	Work With Work Group or Team
	Electronic Mail
	Freedom to Make Decisions
	Deal With External Customers
	Frequency of Decision Making
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Importance of Being Exact or Accurate
1.1.7	Importance of Repeating Same Tasks
Job Zone	2
Work Styles	Cooperation
	Dependability
	Attention to Detail
	Self Control
	Stress Tolerance
	Adaptability/Flexibility
	Initiative
	Concern for Others
	Independence
	Persistence
	Integrity
	Social Orientation
	Analytical Thinking
	Achievement/Effort
	Leadership
Work Values	Loudoronip
Work Needs	
Hourly	\$13.22
Median Wages Hourly	\$13.22 \$27.400
- Annuai	
Projected Growth	Faster than average (21-35%)

Accountants and auditors

		ilis and additors	
% Projected Employment			
Skills	Mathematics	Time Management	
	Active Listening	Active Learning	
	Critical Thinking	Reading Comprehension	
	Monitoring	Writing	
	Judgment and Decision Making	-	
Abilities	Problem Sensitivity	Near Vision	
	Deductive Reasoning	Oral Comprehension	
	Information Ordering	Problem Sensitivity	
	Oral Expression	Number Facility	
	Written Expression	Speech Clarity	
	Mathematical Reasoning	Speech Recognition	
	· ·	Information Ordering	
	Written Comprehension	iniornation Ordering	
Work Activities	Inductive Reasoning		
Work Activities	Interacting With Computers		
	Analyzing Data or Information		
	Processing Information		
	Getting Information		
	Documenting/Recording Informa		
	Establishing and Maintaining Inte		
	Organizing, Planning, and Priorit		
	Communicating with Supervisors	s, Peers, or Subordinates	
	Making Decisions and Solving P	roblems	
	Interpreting the Meaning of Information	mation for Others	
	Evaluating Information to Determ	nine Compliance with Standards	
	Identifying Objects, Actions, and	Events	
	Monitor Processes, Materials, or	Surroundings	
	Judging the Qualities of Things,		
	Updating and Using Relevant Kn		
Work Context	Telephone		
	Electronic Mail		
	Indoors, Environmentally Controlled		
	Face-to-Face Discussions Structured versus Unstructured Work Spend Time Sitting		
	Freedom to Make Decisions		
	Importance of Being Exact or Ac	curate	
	Work With Work Group or Team		
	Letters and Memos		
	Contact With Others		
	Frequency of Decision Making		
	Time Pressure		
	Impact of Decisions on Co-worke	ers or Company Results	
	Duration of Typical Work Week		
	Importance of Repeating Same	Tasks	
	Consequence of Error		
Job Zone	4		
Work Styles	Attention to Detail	Adaptability/Flexibility	
	Dependability	Independence	
	Integrity	Self Control	
	Analytical Thinking	Persistence	
	Stress Tolerance	Concern for Others	
	Cooperation	Initiative	
	Achievement/Effort	Leadership	
Work Values	Working Conditions	·	
Work Needs	Working Conditions	Activity	
	Security	Ability Utilization	
	Compensation	Social Status	
Madian Wagaa Hourly	\$25.10	Coolai Ciatao	
Median Wages Annual	\$52,210		
Projected Growth	Faster than average (21-35%)		

Marketing managers

% Projected Employment 0.8% Skills Critical Thinking Time Management Operations Coordination Active Listening Service Orie Reading Comprehension Persuasion Complex Pr	
Coordination Active Listening Service Orie Reading Comprehension Persuasion Complex Pr	Analysis
Reading Comprehension Persuasion Complex Pr	
1	
	oblem Solving
Active Learning Negotiation Instructing	
Speaking Learning Strategies Social Perce	eptiveness
Writing Mathematics Management of	of Financial Resources
Judgment and Decision Making Monitoring Management of	of Personnel Resources
Abilities Written Comprehension Fluency of Ideas	
Oral Comprehension Inductive Reasoning	
Oral Expression Speech Recognition	
Speech Clarity Written Expression	
Deductive Reasoning Problem Sensitivity	
Work Activities Communicating with Persons Outside Organization	
Communicating with Supervisors, Peers, or Subordinates	
Establishing and Maintaining Interpersonal Relationships	
Making Decisions and Solving Problems	
Interacting With Computers	
Getting Information	
Organizing, Planning, and Prioritizing Work	
Selling or Influencing Others	
Judging the Qualities of Things, Services, or People	
Processing Information	
Identifying Objects, Actions, and Events	
Updating and Using Relevant Knowledge	
Interpreting the Meaning of Information for Others	
Documenting/Recording Information	
Resolving Conflicts and Negotiating with Others	
Thinking Creatively	
Performing for or Working Directly with the Public	
Work Context Telephone	
Electronic Mail	
Contact With Others	
Duration of Typical Work Week	
Deal With External Customers	
Structured versus Unstructured Work	
Face-to-Face Discussions	
Freedom to Make Decisions	
Spend Time Sitting	
Letters and Memos	
Work With Work Group or Team	
Impact of Decisions on Co-workers or Company Results	
Coordinate or Lead Others	
Indoors, Environmentally Controlled	
Frequency of Decision Making	
Importance of Being Exact or Accurate	
Job Zone 4	
Work Styles Leadership Dependability Innovation	
Adaptability/Flexibility Achievement/Effort Stress Toler	
Initiative Independence Attention to	
Integrity Cooperation Self Control	
Demister of Control Office Control	Others
Persistence Social Orientation Concern for	
Persistence Social Orientation Concern for Work Values Achievement	
Work Values Achievement Independence	
Work Values Achievement Independence Work Needs Working Conditions	
Work Values Independence Work Needs Working Conditions Ability Utilization	
Work Values Achievement Independence Work Needs Working Conditions Ability Utilization Creativity	
Work Values Achievement Independence Work Needs Working Conditions Ability Utilization Creativity Autonomy	
Work Values Achievement Independence Work Needs Working Conditions Ability Utilization Creativity Autonomy Achievement	
Work Values Achievement Independence Work Needs Working Conditions Ability Utilization Creativity Autonomy Achievement Median Wages Hourly Achievement Achievement	
Work Values Achievement Independence Work Needs Working Conditions Ability Utilization Creativity Autonomy Achievement	

Computer software engineers, systems software

% Projected Employment	•	ngineers, systems software	
Skills	Complex Problem Solving	Reading Comprehension	
Omno	Technology Design	Systems Analysis	
	Troubleshooting	Mathematics	
	Critical Thinking	Operations Analysis	
	Active Learning	Active Listening	
	Programming	Active Listering	
Abilities	Deductive Reasoning		
7 1.0.11.000	Inductive Reasoning		
Work Activities	Interacting With Computers		
	Making Decisions and Solving Problems		
	Analyzing Data or Information		
	Updating and Using Relevant K	nowledge	
	Organizing, Planning, and Priori		
	Communicating with Supervisor		
	Getting Information		
	Evaluating Information to Determ	nine Compliance with Standards	
	Documenting/Recording Information	ation	
	Identifying Objects, Actions, and	I Events	
	Processing Information		
	Interpreting the Meaning of Info	mation for Others	
	Thinking Creatively		
	Scheduling Work and Activities		
	Establishing and Maintaining Int	•	
	Provide Consultation and Advice		
	Developing Objectives and Stra		
IA/- als O- als sal	Monitor Processes, Materials, o	r Surroundings	
Work Context	Face-to-Face Discussions		
	Electronic Mail		
	Importance of Being Exact or Ac		
	Work With Work Group or Team		
	Indoors, Environmentally Controlled Spend Time Sitting Structured versus Unetrustured Work		
	Structured versus Unstructured Work Freedom to Make Decisions		
	Telephone		
	Contact With Others		
	Importance of Repeating Same	Tasks	
	Spend Time Making Repetitive		
	Time Pressure	violiono	
	Duration of Typical Work Week		
Job Zone	4		
Work Styles	Analytical Thinking	Adaptability/Flexibility	
	Attention to Detail	Dependability	
	Cooperation	Persistence	
	Initiative	Stress Tolerance	
	Achievement/Effort	Leadership	
	Integrity	Independence	
	Innovation		
Work Values	Achievement		
	Independence		
Work Needs	Ability Utilization		
	Working Conditions		
	Responsibility		
	Creativity		
	Social Status		
	Autonomy		
I .	Achievement		
	A .1 1.		
	Activity		
	Security		
Median Wages Hourly	Security \$39.48		
Median Wages Hourly Annual Projected Growth	Security		

Medical scientists, except epidemiologists

Of Projected Francisco		except epidemiologists			
% Projected Employment		Instruction	Speaking		
Skills	Reading Comprehension Science	Instructing Time Management	Speaking Manitoring		
		Time Management	Monitoring		
	Active Listening	Critical Thinking	Learning Strategies		
	Active Learning	Judgment and Decision Making	Coordination		
Abilities	Writing	Complex Problem Solving	Muitta a Françaia a		
Abilities	Oral Comprehension	Oral Expression	Written Expression		
	Inductive Reasoning	Deductive Reasoning	Near Vision		
Mark Astivities	Written Comprehension	Problem Sensitivity	Speech Clarity		
Work Activities	Getting Information				
	Processing Information Making Decisions and Solving Problems				
	Updating and Using Relevant Kı	nowledge			
	Interacting With Computers	dia			
	Documenting/Recording Informa	ation			
	Analyzing Data or Information	Frants			
	Identifying Objects, Actions, and				
		nine Compliance with Standards			
	Interpreting the Meaning of Infor				
	Communicating with Persons O	_			
	Communicating with Supervisor				
	Judging the Qualities of Things,				
	Organizing, Planning, and Priori				
	Establishing and Maintaining Int				
Mark Cartast	Monitor Processes, Materials, or				
Work Context	Indoors, Environmentally Contro	nied			
	Face-to-Face Discussions				
	Telephone				
	Duration of Typical Work Week				
	Electronic Mail				
	Work With Work Group or Team				
	Freedom to Make Decisions				
	Responsibility for Outcomes and Results				
	Structured versus Unstructured Work				
	Coordinate or Lead Others				
	Importance of Being Exact or Ac	ccurate			
	Contact With Others	and Cafat.			
	Responsible for Others' Health a Letters and Memos	and Salety			
Job Zone	Deal With External Customers 5				
Work Styles	Integrity	Initiative	Innovation		
WOIR SIGIES	Persistence	Stress Tolerance	Adaptability/Flexibility		
	Attention to Detail	Cooperation	Leadership		
	Analytical Thinking	Dependability	Independence		
	Achievement/Effort	Self Control	Social Orientation		
Work Values	Achievement	CON CONTROL	Coolai Orioritation		
VVOIN Values	Independence				
	Working Conditions				
	Recognition				
Work Needs	Achievement	Compensation			
FFOIR IVOCUS	Social Status	Activity			
	Ability Utilization	Working Conditions			
	Security	Recognition			
	Responsibility	Creativity			
	Autonomy	Variety			
Madian Wassa Hourly	\$29.68	varioty			
Median Wages Annual	\$61,730				
Projected Growth	Faster than average (21-35%)				
i iojoutou Uluwiii	1 43101 111411 average (21-33%)				

Computer software engineers, applications

	•	engineers, applications
% Projected Employment		
Skills	Programming	Operations Analysis
	Critical Thinking	Systems Analysis
	Complex Problem Solving	Quality Control Analysis
	Troubleshooting	Active Listening
	Active Learning	Speaking
	Technology Design	Time Management
	Judgment and Decision Making	
	Reading Comprehension	
Abilities	Oral Comprehension	
	Deductive Reasoning	
	Near Vision	
	Inductive Reasoning	
	Problem Sensitivity	
	Speech Clarity	
	Written Comprehension	
Work Activities		
Work Activities	Interacting With Computers	anula da a
	Updating and Using Relevant Kr	lowleage
	Getting Information	and the same
	Making Decisions and Solving P	
	Communicating with Supervisors	s, Peers, or Subordinates
	Thinking Creatively	
	Identifying Objects, Actions, and	Events
	Analyzing Data or Information	
	Processing Information	
Work Context	Face-to-Face Discussions	
	Electronic Mail	
	Spend Time Sitting	
	Work With Work Group or Team	
	Indoors, Environmentally Contro	lled
	Freedom to Make Decisions	
	Importance of Being Exact or Ac	curate
	Coordinate or Lead Others	
Job Zone	4	
Work Styles	Analytical Thinking	
	Attention to Detail	
	Cooperation	
	Dependability	
	Achievement/Effort	
	Innovation	
	Persistence	
	Adaptability/Flexibility	
	Initiative	
Work Values	Achievement	
Work Valado	Independence	
Work Needs	Ability Utilization	
VVOIN IVEEUS	Working Conditions	
	Responsibility	
	Creativity	
	Social Status	
	Autonomy	
	Achievement	
	Activity	
<u> </u>	Security	
Median Wages Hourly	\$37.06	
- Annuai	\$77,090	
Projected Growth	Much faster than average (36+%	b)

Business operation specialists, all other

% Projected Employme	nt 1.8%
Skills	
Abilities	
Work Activities	
Work Context	
Job Zone	
Work Styles	
Work Values	
Work Needs	
Median Wages Hour	y \$26.22
Annu	al \$54,550
Projected Growth	Faster than average (21-35%)

Executive secretaries and administrative assistants

0.5	Executive secretaries and administrative assistants
% Projected Employment	
Skills	Active Listening
	Reading Comprehension
	Time Management
	Speaking
Abilities	Oral Comprehension
	Written Comprehension
	Written Expression
	Oral Expression
	Speech Clarity
	Near Vision
Work Activities	Performing Administrative Activities
	Interacting With Computers
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Organizing, Planning, and Prioritizing Work
	Establishing and Maintaining Interpersonal Relationships
	Communicating with Persons Outside Organization
	Documenting/Recording Information
	Identifying Objects, Actions, and Events
Work Context	Telephone
	Contact With Others
	Face-to-Face Discussions
	Electronic Mail
	Letters and Memos
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Structured versus Unstructured Work
	Importance of Repeating Same Tasks
	Spend Time Sitting
	Freedom to Make Decisions
	Deal With External Customers
	Coordinate or Lead Others
	Indoors, Environmentally Controlled
	Time Pressure
Job Zone	3
Work Styles	Cooperation
	Attention to Detail
	Dependability
	Integrity
	Concern for Others
	Self Control
	Adaptability/Flexibility
	Stress Tolerance
	Independence
	Initiative
	Social Orientation
	Innovation
	Achievement/Effort
	Persistence
Work Values	L GISISIGIICE
Work Values Work Needs	Working Conditions
WOIN NEEds	
Llah.	Company Policies and Practices
Median Wages Hourly	\$17.29 \$35.000
- Annuai	\$35,960 Average (10,30%)
Projected Growth	Average (10-20%)

Network systems and data communications analysts

0/ Projected Employment		ata communications analysis
% Projected Employment		
Skills	Equipment Selection	Judgment and Decision Making
	Troubleshooting	Technology Design
	Complex Problem Solving	Coordination
	Active Listening	Systems Evaluation
	Active Learning	Operations Analysis
	Critical Thinking	Equipment Maintenance
	Installation	Systems Analysis
	Reading Comprehension	Instructing
Abilities	Near Vision	Deductive Reasoning
, iomaes	Written Comprehension	Problem Sensitivity
Work Activities	Interacting With Computers	1 Toblem densitivity
Work Activities	Communicating with Supervisors	Doors or Subordinates
	Getting Information	s, reers, or Subordinates
	· ·	
	Thinking Creatively	
	Communicating with Persons Ou	
	Establishing and Maintaining Inte	
	Identifying Objects, Actions, and	
	Organizing, Planning, and Priorit	
	Making Decisions and Solving P	
	Updating and Using Relevant Kn	nowledge
	Monitor Processes, Materials, or	Surroundings
	Judging the Qualities of Things,	Services, or People
	Evaluating Information to Determ	
	Analyzing Data or Information	
	Interpreting the Meaning of Infor	mation for Others
	Processing Information	mater for others
	Documenting/Recording Informa	tion
Work Context		lion
Work Context	Telephone	
	Electronic Mail	HI
	Indoors, Environmentally Control	lied
	Face-to-Face Discussions	
	Importance of Being Exact or Ac	
	Structured versus Unstructured \	Nork
	Duration of Typical Work Week	
	Freedom to Make Decisions	
	Work With Work Group or Team	
	Contact With Others	
	Spend Time Sitting	
Job Zone	3	
Work Styles	Attention to Detail	
Train egies	Dependability	
	Analytical Thinking	
	Stress Tolerance	
	Initiative	
	Adaptability/Flexibility	
	Persistence	
	Achievement/Effort	
	Self Control	
	Cooperation	
	Independence	
	Integrity	
Work Values	Achievement	
Work Needs	Ability Utilization	
	Compensation	
	Company Policies and Practices	
	Autonomy	
	Working Conditions	
	Security	
House	\$29.69	
Median Wages Hourly Annual	\$61,750	
	. ,	
Projected Growth	Much faster than average (36+%	0)

Biological technicians

% Projected Emple	ovment	1.1%
Skills	-,	Science
2		Reading Comprehension
		Instructing
		Active Learning
Abilities		Information Ordering
		Problem Sensitivity
Work Activitie	es	Interacting With Computers
		Documenting/Recording Information
		Processing Information
		Updating and Using Relevant Knowledge
		Identifying Objects, Actions, and Events
		Getting Information
		Communicating with Supervisors, Peers, or Subordinates
		Evaluating Information to Determine Compliance with Standards
Work Contex	xt	Electronic Mail
		Indoors, Environmentally Controlled
		Face-to-Face Discussions
		Importance of Being Exact or Accurate
		Work With Work Group or Team
		Telephone
		Wear Common Protective or Safety Equipment
		Contact With Others
		Importance of Repeating Same Tasks
		Time Pressure
		Coordinate or Lead Others
		Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Job Zone		4
Work Styles	3	Attention to Detail
		Dependability
147 7 37 7		Integrity
Work Values		
Work Needs		010.47
	Hourly	\$16.47
		\$34,270
Projected Grou	wth	Average (10-20%)

Biochemists and biophysicists

% Projected Employment	1 90/
Skills	Science Reading Company on sign
	Reading Comprehension
	Mathematics
	Critical Thinking
	Writing
	Active Learning
Abilities	Inductive Reasoning
	Written Comprehension
	Deductive Reasoning
	Near Vision
	Information Ordering
Work Activities	Identifying Objects, Actions, and Events
	Getting Information
	Monitor Processes, Materials, or Surroundings
	Analyzing Data or Information
	Documenting/Recording Information
	Processing Information
	Updating and Using Relevant Knowledge
	Making Decisions and Solving Problems
	Controlling Machines and Processes
	Interpreting the Meaning of Information for Others
Work Context	Indoors, Environmentally Controlled
	Importance of Being Exact or Accurate
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
Job Zone	5
Work Styles	
Work Values	Independence
	Achievement
	Working Conditions
Work Needs	Autonomy
	Ability Utilization
	Responsibility
	Independence
	Creativity
	Security
	Achievement
	Moral Values
	Social Status
	Working Conditions
Madian Wagas Hourly	\$34.14
Median Wages Annual	\$71,000
Projected Growth	Faster than average (21-35%)

Network systems and data communications analysts

		ata communications analysts
% Projected Employment		
Skills	Equipment Selection	Judgment and Decision Making
	Troubleshooting	Technology Design
	Complex Problem Solving	Coordination
	Active Listening	Systems Evaluation
	Active Learning	Operations Analysis
	Critical Thinking	Equipment Maintenance
	Installation	Systems Analysis
	Reading Comprehension	Instructing
Abilities	Near Vision	Deductive Reasoning
	Written Comprehension	Problem Sensitivity
Work Activities	Interacting With Computers	
	Communicating with Supervisors	s, Peers, or Subordinates
	Getting Information	
	Thinking Creatively	
	Communicating with Persons Ou	
	Establishing and Maintaining Inte	
	Identifying Objects, Actions, and	
	Organizing, Planning, and Priorit	
	Making Decisions and Solving P	
	Updating and Using Relevant Kr	
	Monitor Processes, Materials, or	
	Judging the Qualities of Things,	
	Evaluating Information to Determ	nine Compliance with Standards
	Analyzing Data or Information	
	Interpreting the Meaning of Inform	mation for Others
	Processing Information	
	Documenting/Recording Informa	tion
Work Context	Telephone	
	Electronic Mail	
	Indoors, Environmentally Contro	lled
	Face-to-Face Discussions	
	Importance of Being Exact or Ac	curate
	Structured versus Unstructured \	Nork
	Duration of Typical Work Week	
	Freedom to Make Decisions	
	Work With Work Group or Team	
	Contact With Others	
	Spend Time Sitting	
Job Zone	3	
Work Styles	Attention to Detail	
	Dependability	
	Analytical Thinking	
	Stress Tolerance	
	Initiative	
	Adaptability/Flexibility	
	Persistence	
	Achievement/Effort	
	Self Control	
	Cooperation	
	Independence	
	Integrity	
Work Values	Achievement	
Work Needs	Ability Utilization	
	Compensation	
	Company Policies and Practices	
1	Autonomy	
	Working Conditions	
	Security	
Madian Maria Hourly	\$29.69	
Median Wages Annual	\$61,750	
Projected Growth	Much faster than average (36+%)
.,		,

Mechanical engineers

0/ Paris 15	Mechanical engineers
% Projected Employment	
Skills	Mathematics
	Complex Problem Solving
	Critical Thinking
	Reading Comprehension
	Science
	Active Listening
	Time Management
	Judgment and Decision Making
	Writing
	Speaking
	Operations Analysis
	Coordination
	Active Learning
Abilities	Oral Comprehension
	Problem Sensitivity
	Written Comprehension
	Oral Expression
	Near Vision
	Deductive Reasoning
	Inductive Reasoning
14/auto Antivitia	Information Ordering
Work Activities	Making Decisions and Solving Problems
	Interacting With Computers
	Getting Information
Mark Cartast	Communicating with Supervisors, Peers, or Subordinates
Work Context	Indoors, Environmentally Controlled
	Face-to-Face Discussions
	Electronic Mail
	Freedom to Make Decisions
	Work With Work Group or Team
	Telephone
	Contact With Others
	Importance of Being Exact or Accurate
	Duration of Typical Work Week
	Letters and Memos
	Impact of Decisions on Co-workers or Company Results
	Structured versus Unstructured Work
	Frequency of Decision Making
	Time Pressure
lah Zana	Coordinate or Lead Others
Job Zone Work Styles	4 Attention to Detail
vvoik Siyles	Attention to Detail
	Cooperation
	Dependability Leadership
	Leadership Achievement/Effort
	Adaptability/Flexibility
Work Values	Analytical Thinking
vvoik values	Independence Action of the control o
Work Needs	Achievement Autonomy
WOIN NEEDS	Ability Utilization
	Responsibility
	Creativity
	Achievement
	Social Status
	Working Conditions Activity
	·
Marking Marine Hourly	Security \$32.49
Median Wages Annual	\$67,590
Projected Growth	Average (10-20%)
i rojecieu Growiii	Average (10-2070)

Computer systems analysts

	0.40/
% Projected Employment	
Skills	Active Learning
	Reading Comprehension
	Complex Problem Solving
	Critical Thinking
	Active Listening
	Troubleshooting
	Service Orientation
	Monitoring
	Time Management
	Quality Control Analysis
	Systems Analysis
	Coordination
	Technology Design
	Judgment and Decision Making
	Learning Strategies
	Equipment Selection
Abilities	Oral Comprehension
7 iomagg	Problem Sensitivity
	Inductive Reasoning
	· · · · · · · · · · · · · · · · · · ·
Morle Activities	Deductive Reasoning
Work Activities	Interacting With Computers Making Registers and Solving Problems
	Making Decisions and Solving Problems
	Processing Information
	Getting Information
	Updating and Using Relevant Knowledge
	Identifying Objects, Actions, and Events
	Analyzing Data or Information
	Communicating with Supervisors, Peers, or Subordinates
	Thinking Creatively
	Interpreting the Meaning of Information for Others
Work Context	Electronic Mail
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Telephone
	Spend Time Sitting
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Contact With Others
	Duration of Typical Work Week
Job Zone	4
Work Styles	Adaptability/Flexibility
1	Attention to Detail
	Analytical Thinking
	Persistence
	Dependability
	Initiative
	Integrity
Work Values	Independence
Work Values	Achievement
Work Needs	Company Policies and Practices
WOIN NEEUS	Ability Utilization
	Security
	Autonomy
	Responsibility
	Creativity
	Compensation
Median Wages Hourly	\$32.84
Annual	\$68,300
Projected Growth	Faster than average (21-35%)

General and operations managers

[a/ B	General and operations managers
% Projected Employment	
Skills	Active Listening
	Management of Personnel Resources
	Time Management
	Monitoring
	Reading Comprehension
	Judgment and Decision Making
	Speaking
	Management of Financial Resources
	Persuasion
	Active Learning
Abilities	Oral Expression
	Oral Comprehension
	Problem Sensitivity
	Speech Recognition
	Written Comprehension
	Speech Clarity
	Inductive Reasoning
	Deductive Reasoning
Work Activities	Getting Information
11/ / 5	Communicating with Supervisors, Peers, or Subordinates
Work Context	Telephone
	Duration of Typical Work Week
	Work With Work Group or Team
	Face-to-Face Discussions
	Frequency of Decision Making
	Contact With Others
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Indoors, Environmentally Controlled
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
	Structured versus Unstructured Work
	Coordinate or Lead Others
	Time Pressure
	Electronic Mail
	Responsible for Others' Health and Safety
	Deal With Unpleasant or Angry People
	Letters and Memos
Job Zone	4
Work Styles	Dependability
	Leadership
	Integrity
	Attention to Detail
	Initiative
	Self Control
	Cooperation
	Concern for Others
	Independence
	Analytical Thinking
	Stress Tolerance
	Social Orientation
	Adaptability/Flexibility
	Innovation
	Persistence
	Achievement/Effort
Work Values	
Work Needs	
Hourk	\$39.17
Median Wages Annual	\$81,480
Projected Growth	Average (10-20%)

Network and computer systems administrators

	Network and computer systems administrators
% Projected Employment	1.3%
Skills	Troubleshooting
	Reading Comprehension
	Active Listening
	Active Learning
	Complex Problem Solving
	Critical Thinking
	Service Orientation
Abilities	Near Vision
	Problem Sensitivity
	Inductive Reasoning
	Oral Comprehension
	Oral Expression
	Written Comprehension
	Information Ordering
	Deductive Reasoning
	Finger Dexterity
Work Activities	Interacting With Computers
77 377 7 100 7 100 0	Updating and Using Relevant Knowledge
	Making Decisions and Solving Problems
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Processing Information
	Identifying Objects, Actions, and Events
Work Context	Electronic Mail
Work Context	Telephone
	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Contact With Others
	Structured versus Unstructured Work
	Importance of Being Exact or Accurate
	Freedom to Make Decisions
	Work With Work Group or Team
	Duration of Typical Work Week
	Spend Time Sitting
	Time Pressure
Job Zone	4
Work Styles	Attention to Detail
	Dependability
	Analytical Thinking
	Cooperation
	Initiative
	Stress Tolerance
	Adaptability/Flexibility
	Integrity
	Achievement/Effort
	Independence
	Persistence
	Innovation
	Self Control
	Leadership
Work Values	
Work Needs	
Median Wages Hourly	\$28.81
Annual	\$59,930
Projected Growth	Much faster than average (36+%)

Engineers, all other

% Projected Emp	oloyment	0.7%	
Skills			
Abilities			
Work Activit	ties		
Work Conte	ext		
Job Zone	Job Zone		
Work Style	Work Styles		
Work Value	Work Values		
Work Need	ds		
Median Wages	Hourly	\$37.09	
Wedian Wages	Annual	\$77,150	
Projected Gr	owth	Average (10-20%)	

Computer specialists, all other

% Projected Empl	loyment	0.4%
Skills		
Abilities		
Work Activiti	es	
Work Conte	xt	
Job Zone		
Work Style:	S	
Work Value	s	
Work Need	s	
Median Wages -	Hourly	\$28.57
Wedian Wages	Annual	\$59,420
Projected Gro	wth	Average (10-20%)

Electronics engineers, except computer

	Electronics engineers, except computer
% Projected Employment	
Skills	Reading Comprehension
	Complex Problem Solving
	Troubleshooting
	Equipment Selection
	Active Learning
	Critical Thinking
	Mathematics
	Coordination
	Active Listening
	Judgment and Decision Making
	Writing
	· ·
	Science
A bilitio	Operations Analysis
Abilities	I c Will O
Work Activities	Interacting With Computers
	Getting Information
	Identifying Objects, Actions, and Events
Work Context	Electronic Mail
	Face-to-Face Discussions
	Indoors, Environmentally Controlled
	Telephone
	Structured versus Unstructured Work
	Freedom to Make Decisions
	Spend Time Sitting
	Work With Work Group or Team
	Importance of Being Exact or Accurate
	Contact With Others
	Coordinate or Lead Others
Job Zone	4
Work Styles	Attention to Detail
Work Glyles	Dependability
	Integrity
	Initiative
	Innovation Apply tight Thirding
	Analytical Thinking
	Stress Tolerance
	Cooperation
	Independence
	Persistence
	Achievement/Effort
	Adaptability/Flexibility
Work Values	Work Value
	Achievement
	Independence
Work Needs	Ability Utilization
	Responsibility
	Creativity
	Autonomy
	Working Conditions
	Social Status
	Achievement
Marking Mary Hourly	\$37.52
Median Wages Annual	
Projected Growth	Average (10-20%)

Chemical engineers

Of Drainated Francisco	Chemical engineers
% Projected Employment	
Skills	Science
	Critical Thinking
	Complex Problem Solving
	Active Listening
	Reading Comprehension
	Technology Design
	Active Learning
	Troubleshooting
	Mathematics
	Writing
	Speaking
	Judgment and Decision Making
	Equipment Selection
Abilities	Problem Sensitivity
71011100	Deductive Reasoning
	Information Ordering
Work Activities	<u> </u>
VVOIN ACTIVITIES	Interacting With Computers
	Analyzing Data or Information
	Processing Information
	Making Decisions and Solving Problems
	Getting Information
	Monitor Processes, Materials, or Surroundings
	Identifying Objects, Actions, and Events
	Communicating with Supervisors, Peers, or Subordinates
	Updating and Using Relevant Knowledge
	Organizing, Planning, and Prioritizing Work
	Documenting/Recording Information
	Evaluating Information to Determine Compliance with Standards
	Thinking Creatively
Job Zone	4
Work Styles	Analytical Thinking
	Innovation
	Integrity
	Persistence
	Leadership
	·
	Dependability
	Initiative
	Independence
	Achievement/Effort
	Adaptability/Flexibility
	Cooperation
	Attention to Detail
Work Values	Achievement
	Independence
Work Needs	Ability Utilization
	Creativity
	Responsibility
	Social Status
	Autonomy
	Security
	Achievement
	Working Conditions
	Activity
Madian Warra Hourly	\$37.09
I HOURIV	ευ. 1cφ
Wedian Wades	\$77.140
Median Wages Annual Projected Growth	\$77,140 Average (10-20%)

Engineering managers

		ing managers
% Projected Employment		
Skills	Reading Comprehension	Coordination
	Mathematics	Active Learning
	Active Listening	Operations Analysis
	Critical Thinking	Judgment and Decision Making
	Complex Problem Solving	Time Management
Abilities	Oral Comprehension	Information Ordering
	Written Comprehension	Deductive Reasoning
	Oral Expression	Near Vision
	Speech Recognition	Written Expression
	Inductive Reasoning	Problem Sensitivity
	Speech Clarity	,
Work Activities	Communicating with Supervisors	s, Peers, or Subordinates
	Making Decisions and Solving P	
	Getting Information	
	Communicating with Persons Ou	utside Organization
	Updating and Using Relevant Kr	•
	Coordinating the Work and Activ	
	Establishing and Maintaining Inte	
Work Context	Duration of Typical Work Week	
	Telephone	
	Face-to-Face Discussions	
	Electronic Mail	
	Freedom to Make Decisions	
	Structured versus Unstructured \	Vork
	Frequency of Decision Making	
	Indoors, Environmentally Contro	lled
	Importance of Being Exact or Ac	
	Contact With Others	
	Impact of Decisions on Co-worke	ers or Company Results
	Indoors, Not Environmentally Co	
	Responsibility for Outcomes and	
	Coordinate or Lead Others	. Tooland
	Letters and Memos	
	Time Pressure	
	Responsible for Others' Health a	nd Safety
	Work With Work Group or Team	·
Job Zone	5	
Work Styles	Analytical Thinking	
Train digital	Dependability	
	Integrity	
	Attention to Detail	
	Stress Tolerance	
	Achievement/Effort	
	Self Control	
	Persistence	
	Cooperation	
	Adaptability/Flexibility	
Work Values	Independence	
Tronk values	Achievement	
Work Needs	Autonomy	
, , , , , , , , , , , , , , , , , , ,	Compensation	
	Authority	
	Ability Utilization	
	Company Policies and Practices	
	Working Conditions	
	Achievement	
	Responsibility	
	Activity	
	Security	
Madian Wassa Hourly	\$48.44	
Median Wages Annual	\$100,760	
Projected Growth	Average (10-20%)	
, rojootoa Olowill	11101ago (10 20 /0)	

Industrial engineers

F	industrial engineers
% Projected Employment	
Skills	Critical Thinking
	Time Management
	Active Listening
	Reading Comprehension
	Complex Problem Solving
Abilities	Oral Expression
	Deductive Reasoning
	Problem Sensitivity
	Oral Comprehension
	Mathematical Reasoning
	Information Ordering
	Inductive Reasoning
	Speech Clarity
Work Activities	Communicating with Supervisors, Peers, or Subordinates
	Making Decisions and Solving Problems
	Interacting With Computers
	Getting Information
	Analyzing Data or Information
	Establishing and Maintaining Interpersonal Relationships
	Documenting/Recording Information
	Processing Information
Work Context	Face-to-Face Discussions
	Telephone
	Duration of Typical Work Week
	Importance of Being Exact or Accurate
	Electronic Mail
	Wear Common Protective or Safety Equipment
	Indoors, Environmentally Controlled
	Work With Work Group or Team
	Contact With Others
	Impact of Decisions on Co-workers or Company Results
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Structured versus Unstructured Work
	Freedom to Make Decisions
Job Zone	4
Work Styles	Attention to Detail
ĺ	Analytical Thinking
	Dependability
	Initiative
	Integrity
	Adaptability/Flexibility
	Persistence
	Innovation
	Cooperation
	Leadership
	Achievement/Effort
	Independence
Work Values	Independence
	Achievement
Work Needs	
Llough	\$32.05
Median Wages Annual	\$66,670
Projected Growth	Average (10-20%)
,	

Computer and information systems managers

0/ Projected Francisco	•	nation systems managers
% Projected Employment		
Skills	Reading Comprehension	
	Critical Thinking	
	Active Listening	
	Judgment and Decision Making	
	Active Learning	
	Negotiation	
	Management of Financial Resou	rces
	Complex Problem Solving	
Abilities	Problem Sensitivity	
	Oral Expression	
	Oral Comprehension	
	Written Comprehension	
	Deductive Reasoning	
	Near Vision	
	Speech Clarity	
	Inductive Reasoning	
Work Activities	Getting Information	
	Interacting With Computers	
	Identifying Objects, Actions, and	Events
	Interpreting the Meaning of Inform	
	Scheduling Work and Activities	
	Making Decisions and Solving P	roblems
	Establishing and Maintaining Inte	
	Thinking Creatively	
Work Context	Telephone	
	Electronic Mail	
	Face-to-Face Discussions	
	Work With Work Group or Team	
	Contact With Others	
	Freedom to Make Decisions	
	Spend Time Sitting	
	Structured versus Unstructured \	Nork
	Duration of Typical Work Week	VOIK
		llad
	Indoors, Environmentally Control	
	Importance of Being Exact or Ac	curate
	Letters and Memos	
1-1-7	Coordinate or Lead Others	
Job Zone	5	
Work Styles	Dependability	
	Self Control	
	Integrity	
	Adaptability/Flexibility	
1	Persistence	
	Independence	
	Analytical Thinking	
	Leadership	
	Cooperation	
	Attention to Detail	
	Initiative	
	Stress Tolerance	
	Achievement/Effort	
	Innovation	
Work Values	Independence	
Work Needs	Authority	Security
	Working Conditions	Autonomy
	Ability Utilization	Compensation
	Responsibility	
Martin Mart	\$46.41	
Median Wages Annual	\$96,520	
Projected Growth	Faster than average (21-35%)	
i rojoci c a Growin	1 43101 111411 avelage (21-33/0)	

Electrical engineers

	Electrical engineers
% Projected Employment	
Skills	Active Listening
	Troubleshooting
	Critical Thinking
	Reading Comprehension
	Technology Design
	Complex Problem Solving
	Active Learning
	Systems Analysis
	Judgment and Decision Making
	Time Management
	Coordination
Abilities	Deductive Reasoning
	Near Vision
Work Activities	Interacting With Computers
	Organizing, Planning, and Prioritizing Work
	Getting Information
	Making Decisions and Solving Problems
	Updating and Using Relevant Knowledge
	Analyzing Data or Information
	Thinking Creatively
	Communicating with Supervisors, Peers, or Subordinates
	Documenting/Recording Information
	Evaluating Information to Determine Compliance with Standards
	Identifying Objects, Actions, and Events
Work Context	Indoors, Environmentally Controlled
	Electronic Mail
	Structured versus Unstructured Work
	Freedom to Make Decisions
	Face-to-Face Discussions
	Importance of Being Exact or Accurate
	Spend Time Sitting
	Telephone
	Work With Work Group or Team
Job Zone	4
Work Styles	Attention to Detail
Work Glylos	Analytical Thinking
	Integrity
	Dependability
	Self Control
	Initiative
	Stress Tolerance
	Cooperation
	Achievement/Effort
	Adaptability/Flexibility
	Persistence
Work Values	Achievement
VVOIN Values	Independence
Work Needs	Ability Utilization
Work Noods	Responsibility
	Creativity
	Social Status
	Autonomy
	Security
	Working Conditions
	Achievement
Llavelia	\$35.34
Median Wages Hourly Annual	\$73,510
Projected Growth	Average (10-20%)
Frojeciea Growin	Average (10-2070)

Natural sciences managers

0/ Dunington J T	Natural sciences managers
% Projected Employment	
Skills	Science
	Critical Thinking
	Reading Comprehension
	Writing
	Active Learning
	Mathematics
	Time Management
Abilities	Oral Comprehension
	Oral Expression
	Written Comprehension
	Speech Clarity
	Inductive Reasoning
	Speech Recognition
	Deductive Reasoning
Work Activities	Analyzing Data or Information
	Getting Information
	Communicating with Supervisors, Peers, or Subordinates
	Making Decisions and Solving Problems
	Interacting With Computers
	Documenting/Recording Information
	Processing Information
	Scheduling Work and Activities
Work Context	Electronic Mail
TOM COMON	Face-to-Face Discussions
	Telephone
	Work With Work Group or Team
	Indoors, Environmentally Controlled
	Freedom to Make Decisions
	Structured versus Unstructured Work
	Duration of Typical Work Week
	Coordinate or Lead Others
	Letters and Memos
	Contact With Others
	Impact of Decisions on Co-workers or Company Results
	Responsibility for Outcomes and Results
	Deal With External Customers
·	Frequency of Decision Making
Job Zone	5
Work Styles	Analytical Thinking
	Initiative
	Integrity
	Leadership
	Adaptability/Flexibility
	Persistence
	Dependability
	Cooperation
	Independence
Work Values	Independence
Work Needs	Working Conditions
	Autonomy
	Responsibility
	Authority
	Ability Utilization
Madian Mana Hourly	\$44.75
Median Wages Annual	\$93,090
Projected Growth	Average (10-20%)
Trojected Growth	/ Worldgo (10 2070)

Electrical and electronic engineering technicians

	Electrical and electronic engineering technicians
% Projected Employment	
Skills	Troubleshooting
	Repairing
	Equipment Maintenance
	Equipment Selection
	Time Management
	Mathematics
	Critical Thinking
	Reading Comprehension
	Active Learning
	Active Listening
Abilities	
Work Activities	Interacting With Computers
	Repairing and Maintaining Electronic Equipment
	Inspecting Equipment, Structures, or Material
	Identifying Objects, Actions, and Events
	Communicating with Supervisors, Peers, or Subordinates
	Processing Information
	Updating and Using Relevant Knowledge
Work Context	Face-to-Face Discussions
Work Context	Indoors, Environmentally Controlled
	Spend Time Using Your Hands to Handle, Control, or Feel Objects, Tools, or Controls
	Freedom to Make Decisions
	Importance of Being Exact or Accurate
	Time Pressure
	Structured versus Unstructured Work
	Contact With Others
	Duration of Typical Work Week
	Electronic Mail
	Telephone
	Impact of Decisions on Co-workers or Company Results
	Work With Work Group or Team
	Coordinate or Lead Others
Job Zone	3
Work Styles	Attention to Detail
	Integrity
	Dependability
	Cooperation
	Concern for Others
	Independence
	Initiative
	Self Control
	Analytical Thinking
	Stress Tolerance
	Persistence
	Adaptability/Flexibility
Work Values	· · · · · · · · · · · · · · · · · · ·
Work Needs	Moral Values
1.5,10000	Working Conditions
Madian Mana Hourly	\$23.10
Median Wages Annual	\$48,040
Projected Growth	Average (10-20%)
i rojecieu Growin	Avoiago (10 2070)

Physical scientists, all other

% Projected Emp	oloyment	0.8%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone	9	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages	Hourly	\$40.05
Wedian Wages	Annual	\$83,300
Projected Gr	owth	Average (10-20%)

Managers, all other

% Projected Emp	oloyment	0.4%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone	9	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages	Hourly	\$38.06
Wedian Wages	Annual	\$79,170
Projected Gr	owth	Slower than average (0-9%)

Chemists

% Projected Employment	0.8%	
Skills	Science	Critical Thinking
	Complex Problem Solving	Speaking
		Equipment Selection
	Reading Comprehension	···
	Quality Control Analysis	Troubleshooting
	Writing	Mathematics
	Time Management	Judgment and Decision Making
	Active Listening	Coordination
	Active Learning	
Abilities	Inductive Reasoning	Oral Comprehension
Abilities	=	
	Deductive Reasoning	Information Ordering
	Oral Expression	
Work Activities	Interacting With Computers	
	Getting Information	
	Processing Information	
Work Context	Wear Common Protective or Saf	ety Equipment
	Face-to-Face Discussions	o., _qa.po
	Freedom to Make Decisions	A
	Structured versus Unstructured \	
	Indoors, Environmentally Contro	lled
	Exposed to Hazardous Condition	ns
	Telephone	
	Importance of Being Exact or Ac	curate
	Coordinate or Lead Others	ourate
		O BII-
	Impact of Decisions on Co-worke	
	Responsibility for Outcomes and	Results
	Electronic Mail	
	Work With Work Group or Team	
	Contact With Others	
	Level of Competition	
	Frequency of Decision Making	
i e e e e e e e e e e e e e e e e e e e		
	Exposed to Contaminants	
Job Zone	Exposed to Contaminants 4	
Job Zone Work Styles		
	4 Integrity	
	Integrity Dependability	
	Integrity Dependability Attention to Detail	
	Integrity Dependability Attention to Detail Analytical Thinking	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative	
	Integrity Dependability Attention to Detail Analytical Thinking	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility	
Work Styles	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation	
	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility	
Work Styles	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement	
Work Styles	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions	
Work Styles	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence Company Policies and Practices	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence	
Work Styles Work Values	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence Company Policies and Practices Compensation	
Work Values Work Needs	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence Company Policies and Practices Compensation Working Conditions	
Work Values Work Needs Median Wages Hourly	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence Company Policies and Practices Compensation Working Conditions \$27.83	
Work Values Work Needs	Integrity Dependability Attention to Detail Analytical Thinking Initiative Achievement/Effort Independence Cooperation Persistence Innovation Adaptability/Flexibility Stress Tolerance Achievement Independence Working Conditions Ability Utilization Creativity Responsibility Autonomy Security Achievement Moral Values Independence Company Policies and Practices Compensation Working Conditions \$27.83	

Accountants and auditors

Of Duplostad Francisco		its and additors		
% Projected Employment		Time Management		
Skills	Mathematics	Time Management		
	Active Listening	Active Learning		
	Critical Thinking	Reading Comprehension		
	Monitoring	Writing		
	Judgment and Decision Making			
Abilities	Problem Sensitivity	Mathematical Reasoning	Problem Sensitivity	
	Deductive Reasoning	Written Comprehension	Number Facility	
	Information Ordering	Inductive Reasoning	Speech Clarity	
	Oral Expression	Near Vision	Speech Recognition	
	Written Expression	Oral Comprehension	Information Ordering	
Work Activities	Interacting With Computers			
	Analyzing Data or Information			
	Processing Information			
	Getting Information			
	Documenting/Recording Informa			
	Establishing and Maintaining Interpersonal Relationships			
	Organizing, Planning, and Priorit			
	Communicating with Supervisors			
	Making Decisions and Solving P			
	Interpreting the Meaning of Infor			
	Evaluating Information to Determine Compliance with Standards			
	Identifying Objects, Actions, and			
	Monitor Processes, Materials, or	•		
	Judging the Qualities of Things,			
	Updating and Using Relevant Kr	owledge		
Work Context	Telephone			
	Electronic Mail			
	Indoors, Environmentally Contro	lled		
	Face-to-Face Discussions			
	Structured versus Unstructured \	Nork		
	Spend Time Sitting			
	Freedom to Make Decisions			
	Importance of Being Exact or Ac			
	Work With Work Group or Team			
	Letters and Memos			
	Contact With Others			
	Frequency of Decision Making			
	Time Pressure			
	Impact of Decisions on Co-workers or Company Results			
		Duration of Typical Work Week		
	Importance of Repeating Same	Гasks		
	Consequence of Error			
Job Zone	4			
Work Styles	Attention to Detail	Adaptability/Flexibility		
	Dependability	Independence		
	Integrity	Self Control		
	Analytical Thinking	Persistence		
	Stress Tolerance	Concern for Others		
	Cooperation	Initiative		
	Achievement/Effort	Leadership		
Work Values	Working Conditions			
Work Needs	Working Conditions			
	Security			
	Compensation			
	Activity			
	Ability Utilization			
	Social Status			
Median Wages Hourly	\$25.10			
Annuai	\$52,210			
Projected Growth	Faster than average (21-35%)			

Sales representatives, wholesale and manufacturing, technical and scientific products			
% Projected Employment	0.7%		
Skills	Speaking		
	Persuasion		
	Active Listening		
	Time Management		
	Social Perceptiveness		
	Service Orientation		
	Negotiation		
	Reading Comprehension		
	Critical Thinking		
	Active Learning		
Abilities	Oral Expression		
	Oral Comprehension		
	Speech Clarity		
	Speech Recognition		
Work Activities	Selling or Influencing Others		
	Establishing and Maintaining Interpersonal Relationships		
	Communicating with Persons Outside Organization		
	Making Decisions and Solving Problems		
	Communicating with Supervisors, Peers, or Subordinates		
	Getting Information		
Work Context	Telephone		
	Contact With Others		
	Duration of Typical Work Week		
	Deal With External Customers		
	Electronic Mail		
	Face-to-Face Discussions		
	Structured versus Unstructured Work		
	Freedom to Make Decisions		
	Impact of Decisions on Co-workers or Company Results		
	Level of Competition		
	Letters and Memos		
	Importance of Being Exact or Accurate		
	Work With Work Group or Team		
	Indoors, Environmentally Controlled		
Job Zone	4		
Work Styles	Initiative		
	Independence		
	Achievement/Effort		
	Persistence		
	Dependability		
	Attention to Detail		
	Stress Tolerance		
	Adaptability/Flexibility		
	Integrity		
	Self Control		
	Cooperation		
Work Values			
Work Needs	Autonomy		
	Achievement		
Median Wages Hourly	\$29.21		
Annuai	\$60,760		
Projected Growth	Average (10-20%)		

Social science research assistants

% Projected Emp	oloyment	0.7%
Skills		
Abilities		
Work Activit	ties	
Work Conte	ext	
Job Zone	Э	
Work Style	es	
Work Value	es	
Work Need	ds	
Median Wages -	Hourly	\$16.32
	Annual	\$33,950
Projected Gr	owth	Average (10-20%)

Chemical technicians

Tot 5 /	One mount teem mounts
% Projected Employment	
Skills	Science
	Reading Comprehension
	Quality Control Analysis
	Mathematics
	Operation Monitoring
	Active Listening
Abilities	Near Vision
	Deductive Reasoning
	Information Ordering
	Written Comprehension
	Problem Sensitivity
Work Activities	Documenting/Recording Information
	Processing Information
	Getting Information
	Identifying Objects, Actions, and Events
	Monitor Processes, Materials, or Surroundings
	Analyzing Data or Information
	Making Decisions and Solving Problems
	Communicating with Supervisors, Peers, or Subordinates
	Interacting With Computers
	Inspecting Equipment, Structures, or Material
	Organizing, Planning, and Prioritizing Work
Work Context	Wear Common Protective or Safety Equipment
	Indoors, Environmentally Controlled
	Importance of Being Exact or Accurate
	Telephone
	Electronic Mail
	Face-to-Face Discussions
	Time Pressure
	Exposed to Hazardous Conditions
	Freedom to Make Decisions
	Importance of Repeating Same Tasks
	Structured versus Unstructured Work
	Exposed to Contaminants
	Sounds, Noise Levels Are Distracting or Uncomfortable
	Contact With Others
Job Zone	3
Work Styles	Integrity
	Attention to Detail
	Dependability
	Cooperation
	Independence
	Adaptability/Flexibility
	Analytical Thinking
Work Values	· •
Work Needs	Moral Values
Madian Wagaa Hourly	\$18.51
Median Wages Annual	\$38,500
Projected Growth	Slower than average (0-9%)