

# New Hampshire Economic Conditions

March 2012

## High Technology Employment: Part II – An Occupational Outlook

The term “high technology” is used to describe a variety of products, processes, and workers, but most commonly it is used to describe new and cutting edge developments utilizing scientific and technical knowledge. While almost all jobs today require a higher degree of technological ability than in the past, occupations such as scientists, engineers, and technologists require deeper knowledge of technology.

In the December 2011 issue of Economic Conditions, 2010 high tech employment by industry in New Hampshire was evaluated, using a definition released by the Bureau of Labor Statistics in 2005. This high tech employment definition was based on industries with a high concentration of technology-

oriented occupations, as compared to all occupations in the industry. As noted in that article, one of the reasons for the interest in high tech is that these industries typically pay higher-than-average wages. Another reason to focus on high tech, and its related occupations, is the continued drive toward the use of technology in business solutions. Coming out of the Great Recession, businesses and government institutions are embracing technology as a way to make operations more efficient, increasing productivity without increasing manpower. The question is, how do technological innovations in business operations translate into job prospects for workers in high technology occupations?

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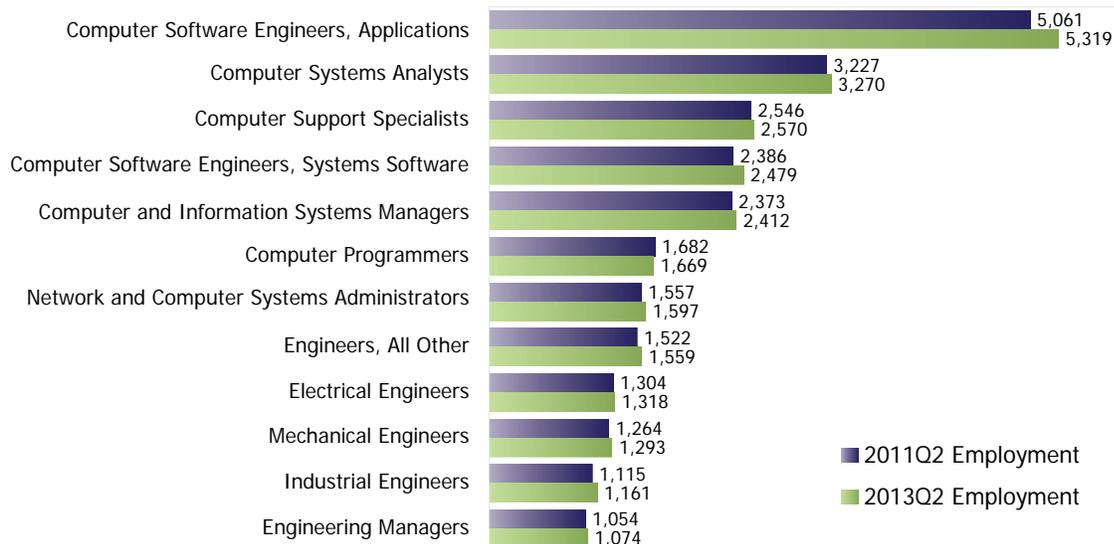
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### Top High Technology Occupations by Employment



Source: Short-term Projections by Occupation. New Hampshire Employment Security, Economic and Labor Market Information Bureau

## New Hampshire Short-Term Occupational Projections, 2011Q2 to 2013Q2

SOC Code	Occupation Title	2011Q2 Employment	2013Q2 Employment	Change	Average Annual			
					Annual Growth Rate	Openings from Growth	Openings from Replacements	Total Openings
<b>Total, All Occupations</b>		<b>671,313</b>	<b>679,088</b>	<b>7,775</b>	<b>0.6%</b>	<b>4,650</b>	<b>15,417</b>	<b>20,067</b>
<b>High technology occupations</b>		<b>37,296</b>	<b>38,190</b>	<b>894</b>	<b>1.2%</b>	<b>470</b>	<b>674</b>	<b>1,144</b>
11-3021	Computer and Information Systems Managers	2,373	2,412	39	0.8%	20	30	50
11-9041	Engineering Managers	1,054	1,074	20	0.9%	10	20	30
11-9121	Natural Sciences Managers	94	95	1	0.5%	1	3	4
15-0000	Computer and Mathematical Occupations	19,261	19,821	560	1.4%	289	286	575
17-2000	Engineers	7,370	7,565	195	1.3%	101	155	256
17-3000	Drafters, engineering, and mapping technicians	4,001	4,040	39	0.5%	23	79	102
19-1000	Life scientists	966	976	10	0.5%	6	22	28
19-2000	Physical scientists	1,080	1,094	14	0.6%	10	31	41
19-4000	Life, physical, and social science technicians	1,097	1,113	16	0.7%	10	48	58

### Short-Term Outlook in High-Tech: 2011 Q2 – 2013 Q2

Employment prospects in high tech occupations are generally positive, as evidenced by above-average expected growth, high educational requirements, and above-average wages.

**Strong growth.** The annual growth rate for all occupations is projected to be 0.6 percent from 2011 Q2 to 2013 Q2. In comparison, the annual growth rate for high technology occupations is 1.2 percent. Employment for *Engineers* and *Computer and mathematical* occupations is expected to grow at a rate more than double the average for all occupations. These two high tech occupational groups had an estimated 7,370 and 19,261 workers, respectively, in 2011 Q2, accounting for more than 70 percent of all high tech occupational

High technology occupations are not a standard occupational group, but a mix of occupations from four different job families. According to the 2005 definition of high tech employment from BLS, technology-oriented occupations are those in the scientific, engineering, and technician fields.<sup>1</sup> The list of high tech occupations includes major and minor occupational groups, as well as individual occupations.<sup>2</sup> These occupational groups and individual occupations encompass 77 New Hampshire-specific occupations.

#### Major occupational group (job family):

- Computer and mathematical occupations (SOC 15-0000)

#### Minor occupational groups:

- Engineers (SOC 17-2000)
- Drafters, engineering, and mapping technicians (SOC 17-3000)
- Life scientists (SOC 19-1000)
- Physical scientists (SOC 19-2000)
- Life, physical, and social science technicians (SOC 19-4000)

#### Individual occupations:

- Computer and information systems managers (SOC 11-3021)
- Engineering managers (SOC 11-9041)
- Natural sciences managers (SOC 11-9121)

<sup>1</sup> Hecker, David E. "High-technology employment: a NAICS-based update." Monthly Labor Review, p. 58. July 2005. Bureau of Labor Statistics. Accessed December 19, 2011. <www.bls.gov/opub/mlr/2005/07/art6full.pdf>.

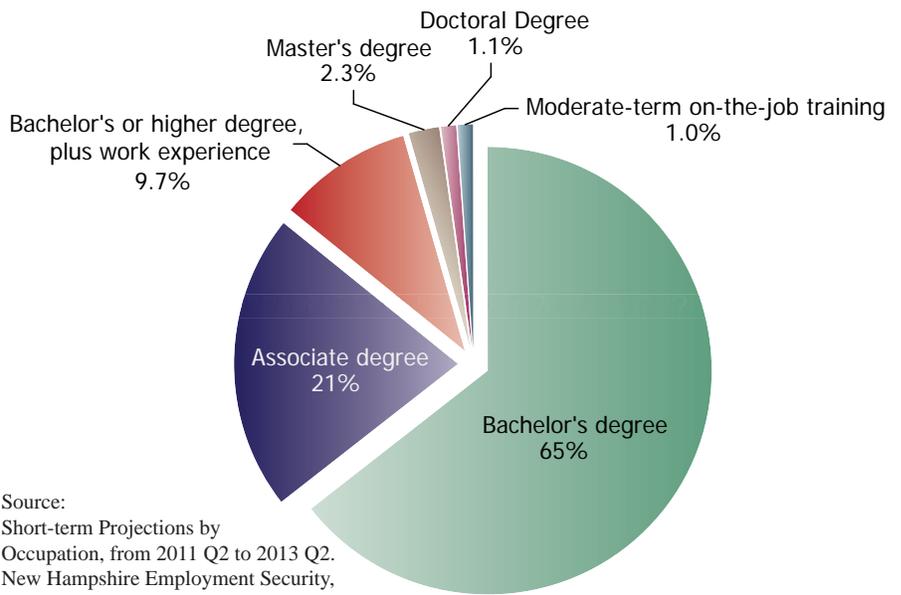
<sup>2</sup> Occupational Employment Statistics data for New Hampshire are not displayed at the minor occupational level.

employment in New Hampshire. Combined, high technology occupations are expected to have 1,144 openings annually through 2013 Q2, accounting for 5.7 percent of total projected annual openings

**Educational Attainment.** All of the high technology occupations require an Associate’s degree or higher level of education to qualify for employment, with the exception of *Surveying and mapping technicians* (SOC 17-3031), which requires work experience learned through on-the-job training. About two-thirds of employment in high technology occupations require at least a Bachelor’s degree, while one out of every five high tech positions requires an Associate’s degree.

**Higher Wages.** Based on Occupational Employment Statistics (OES) data from June 2011, the median hourly wage for all occupations was \$16.98. All of the high technology occupations (with available data) were above that rate of pay, with the exception of *Forest and conservation technicians*

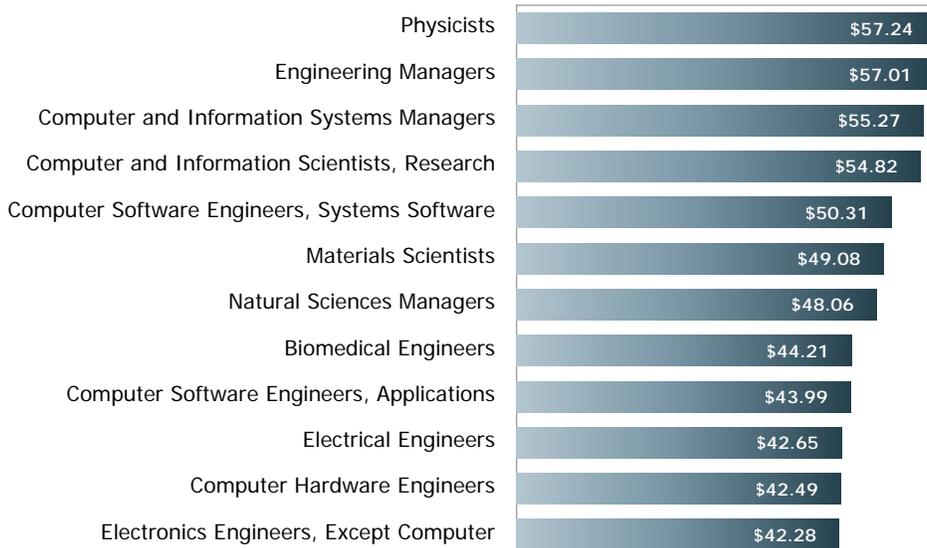
### Employment by Educational Attainment in High-Tech Occupations



and *Social science research assistants*. Since almost all of the high tech occupations require some postsecondary education, higher pay for high tech workers supports consistent evidence that higher education levels equate to higher earnings.

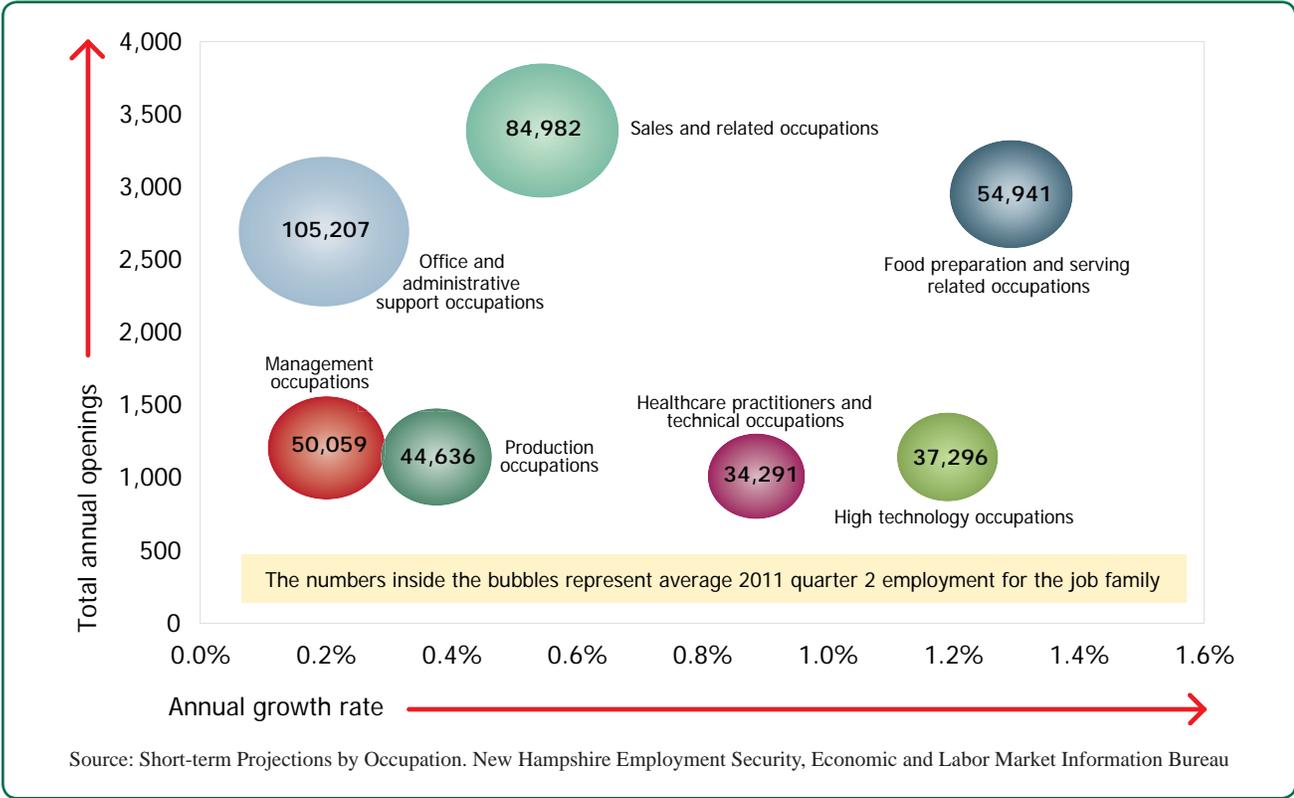
The outlook for many of the computer-related occupations is especially bright as both rates of pay and estimated employment levels are high. Out of the ten high tech occupations expected to have the most job opening annually, seven are computer-related.

### High-Tech Occupations by Median Hourly Wage



Source: Occupational Employment and Wages, May 2010 Survey Aged to June 2011 using Employment Cost Index factors. New Hampshire Employment Security, Economic and Labor Market Information Bureau

## High Technology Occupations Projected to Grow 1.2 Percent Annually from 2011 Q2 to 2013 Q2



In addition, *Network systems and data communications analysts* is expected to grow the fastest among the high tech occupations, with an annual average growth rate of 4.2 percent.

### Comparing high tech occupations to other major occupational groups

High tech is viewed as the engine for future technological innovations. Yet advanced technology is an integral part of other occupational areas, such as *Healthcare practitioner and technical* occupations as well as many *Production* occupations. In the short-term, through 2013 Q2, employment in *Health care practitioner and technical* occupations is projected to

grow at an annual rate of 0.9 percent, with an estimated 1,012 openings annually. Employment in *Production* occupations is only projected to grow at 0.4 percent annually, but it is estimated that this job family will still produce 1,144 annual openings, with about 75 percent of those openings expected from replacement needs. In comparison, for *Computer and mathematical* occupations, the number of openings due to replacement is equally divided between openings due to growth and openings expected from replacement needs.

From 2011 Q2 through 2013 Q2, the highest number of annual openings is expected in *Sales and related* occupations (3,390), *Food*

*preparation and serving related* occupations (2,952), and *Office and administrative support* occupations (2,695). The highest annual growth rates are expected for *Computer and mathematical* occupations (1.4 percent), and *Food preparation and serving related* occupations (1.3 percent).

### Looking for more information?

The 2011 Q2 – 2013 Q2 short-term projections data for all occupations and industries are available on our web site at

<[www.nhes.nh.gov/elmi/products/proj.htm](http://www.nhes.nh.gov/elmi/products/proj.htm)>.

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