Higher Demand, Higher Salaries for Most STEM Workers

As a group, STEM-educated workers—those trained in science, technology, engineering or mathematics—are in greater demand and are making higher salaries than other workers, but not all STEM jobs are created equal.

STEM jobs encompass a large number of positions and may be in the private sector, academia, government, or non-profit organizations. Virtually every industry has some STEM-related occupations. While STEM jobs as a whole continue to grow at a faster-than-average rate, some are growing and some are not, according to the U.S. News & World Report/Raytheon STEM Index.

Increasingly, too, the lines are blurring between STEM jobs and non-STEM jobs. Employees at all levels may be required to become proficient in using their company’s enterprise resource planning software. They may need to understand and use the cloud, big data and mobile apps—yet their jobs may not be classified as STEM jobs.

Today a majority of all jobs require some expertise in technology and the percentage is expected to increase to 77 percent in the next decade, according to the U.S. Bureau of Labor Statistics. In an economy where technology plays the leading role, it’s increasingly difficult to categorize STEM jobs, because, to some degree, practically every job is a STEM job.

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“One of the most salient aspects of a STEM career,” says Steve Koppi, executive director of WPI’s Career Development Center, “is the underlying fact that we live in a world that is entirely dependent on technology and the need for workers to be technologically fluent. That need will continue to increase over time.”

The U.S. Department of Commerce projects that STEM job growth will continue to be above average at least through 2018, with growth at a rate of 17 percent, compared to 9.8 percent for non-STEM occupations.

Similarly, Georgetown’s Center on Education and the Workforce predicts that STEM jobs will have grown 26 percent between 2010 and 2020. It also concluded that professional and technical jobs in healthcare, which it doesn’t classify as STEM employment, would grow by 31 percent.

The Changing STEM Landscape

There’s a tendency to lump all STEM-related jobs together, even though they include jobs as diverse as agricultural technicians, aerospace engineers, astronomers, biochemical engineers, epidemiologists, fire prevention and detection engineers, geneticists, marine architects, nuclear engineers, park naturalists, video game designers, and water resource specialists, to name just a few.

It’s also worth noting:

Demand for STEM jobs varies.

While it’s widely acknowledged that demand for STEM jobs has been growing, try telling that to someone who is looking for a job as a mathematical scientist or an electromechanical technician, to cite two examples.
Demand varies greatly. The boom in hydraulic fracturing, or fracking, resulted in growing demand for petroleum engineers, but demand fell recently as oil prices dropped. Biomedical engineers, likewise, have been in high demand, but computer-related jobs hold the top seven positions for the highest number of employees, with applications software engineers and computer support specialists topping the list.

Jobs for computer support specialists, systems analysts, systems administrators and systems software engineers are also increasing. While jobs for programmers declined more than 40 percent from 2000 through 2014, the position still beats the index as a whole by a wide margin.

Complementary skills are especially valuable. Results from the Job Outlook 2014 survey by the National Association of Colleges and Employers show that employers value a combination of business and technical skills.

The most important skills, according to the survey results, include the ability to work as part of a team, and to make decisions and solve problems. Planning, organizing and prioritizing work, and strong communication skills were also given high priority.

In addition, though, employers noted the importance of an ability to obtain and process information, and to analyze quantitative data. Technical knowledge related to the job and proficiency with software are also among the top 10 skills required by employers, according to the survey results.

Recognizing that business and technical skills are an attractive combination, the Robert A. Foisie School of Business offers STEM-designated master’s of science degrees in information technology, and operations analytics and management.

“Technologically fluent workers who possess strong allied skills will be in high demand,” Koppi says. “These allied skills are intertwined with and applied through technology.”

STEM positions are changing rapidly. Data is lacking for some positions, such as computer network architects, because they didn’t exist a few years ago. Other positions have been combined and some job functions have been assumed by others. Jobs that are classified as STEM jobs are changing rapidly and will continue to change as technology develops.

STEM-educated employees often advance to new positions. Some studies have noted that those who begin their careers in STEM jobs often move on to positions that are not classified as STEM jobs.

The U.S. Census Bureau reported in 2014 that 74 percent of U.S. graduates with STEM bachelor’s degrees are not employed in STEM occupations. However, the Census Bureau noted that the statistic was skewed by certain majors. Only 15 percent of biological, environmental, and agricultural sciences majors; 10 percent of psychology majors; and 7 percent of social science majors stayed within their fields.

In addition, those that move on typically are still using their STEM knowledge.

STEM-educated employees earn more. STEM degree holders enjoy higher earnings, regardless of whether they work in STEM or non-STEM occupations.

The National Science Foundation (NSF) found that half of the workers in science and engineering occupations (including those with only high school or associate’s degrees) earned $73,290 or more in 2010, more than double the median earnings of $33,840 for the total U.S. workforce.

The U.S. Department of Commerce adds that STEM employees earn 26 percent more than their non-STEM counterparts.

STEM education benefits the economy. The Huffington Post notes that technology created by STEM workers accounted for nearly half of the nation’s economic growth in the second half of the 20th century.

Given technological developments so far in the 21st century, STEM educated employees are likely to be driving economic growth for many years to come.

The Robert A. Foisie School of Business is rooted in WPI’s strengths in technology, engineering, and science, and is known for developing innovative and entrepreneurial leaders for a global technological world. The part-time MBA program at the Foisie School of Business has been ranked number one in the northeast by Businessweek since 2007. The undergraduate programs for entrepreneurship and information systems were ranked number one in the country, and the operations management program was ranked number four by Businessweek in 2013.